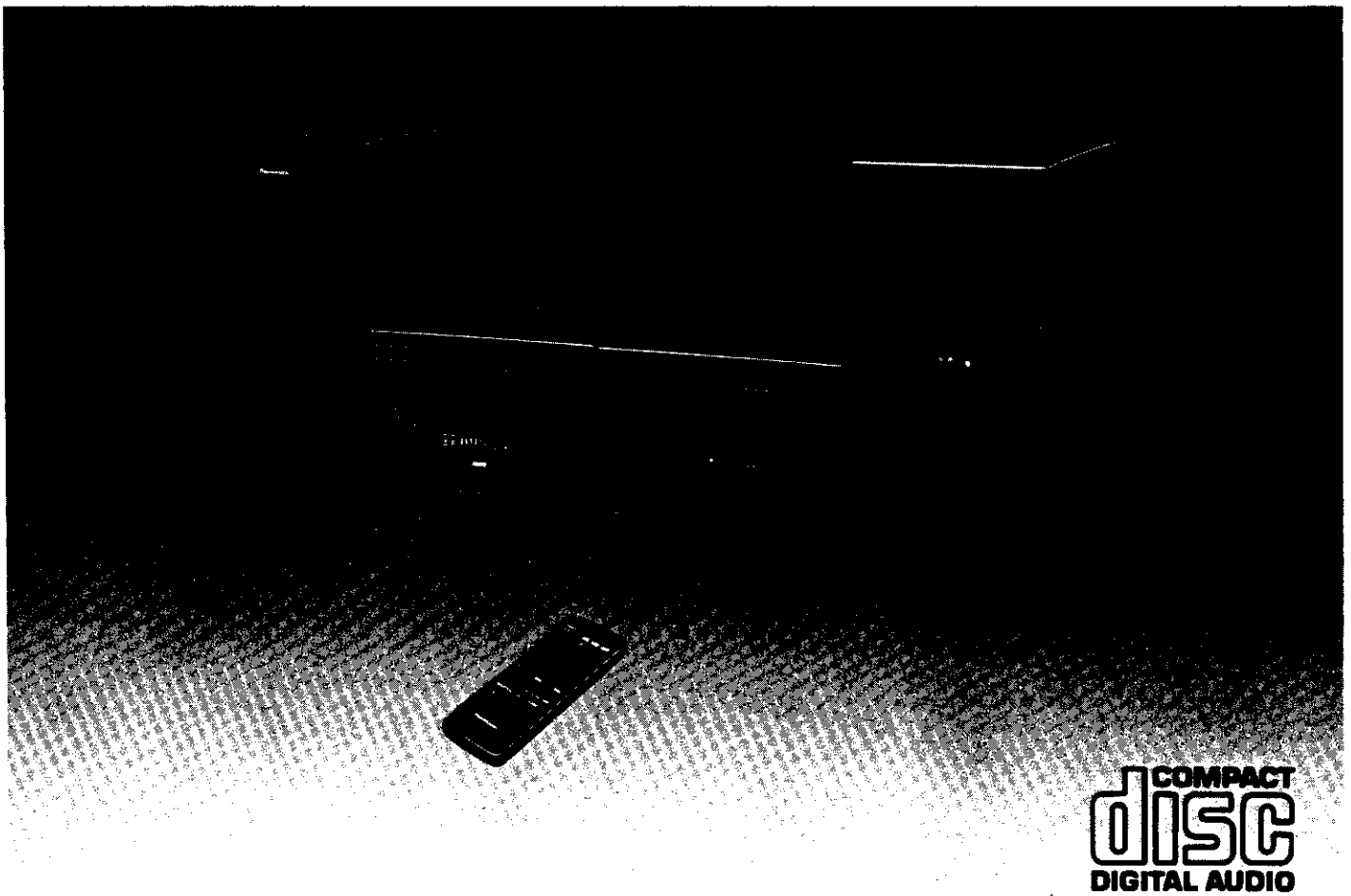
Panasonic

CD System Stereo

SC-CH7

Operating Instructions



GC GN

Before operating this unit, please read these instructions completely.

Dear Stereo Fan

We want to thank you for selecting this product and to welcome you to the growing family of satisfied Panasonic product owners around the world.
We feel certain you will get maximum enjoyment from this new addition to your home.
Please read these operating instructions carefully, and be sure to keep them handy for convenient reference.

These operating instructions are applicable to the following systems.

System	CD player	Tuner	Amplifier	Cassette deck	Speakers
SC-CH7	SL-CH7	ST-CH7L	SU-CH7	RS-CH7	SB-CH7

Contents

Suggestions for Safety 3
Before Use 3
Placement Notes 4
Accessories 4
Remote-Control Transmitter 5
How to Install the System 6
Connections 7
Front Panel Controls and Functions 12
Standard Operations 20
Setting the Time 22
Easy Play 23
Listening to Compact Discs 24
Listening to Tapes 28
Memory Presettings 31
Listening to Radio Broadcasts 33
Listening to Other Sources 34
Changing the Tone Quality 35
Producing a "Live" Performance Sound 38
Recording 40
Edit-Recording Compact Discs 42
Tape to Tape Recording 46
Using the Timer 47
Remote-Control Operation 53
About Cassette Tapes 55
About Compact Discs 56
Maintenance 57
Troubleshooting Guide 58
Technical Specifications 60

CAUTION!
THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.
DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.

AVERTISSEMENT!
CET APPAREIL UTILISE UN LASER.
L'UTILISATION DE COMMANDES OU DE RÉGLAGES OU L'EXÉCUTION DE PROCÉDURES AUTRES QUE CELLES SPÉCIFIÉES ICI PEUVENT PROVOQUER UNE EXPOSITION À DES RADIATIONS DANGEREUSES.
NE PAS OUVRIR LES COUVERCLES NI ESSAYER DE RÉPARER SOI-MÊME. CONFIER TOUT TRAVAIL D'ENTRETIEN À UN PERSONNEL QUALIFIÉ.

¡ADVERTENCIA!
ESTE APARATO UTILIZA UN LASER.
EL USAR LOS CONTROLES, HACER LOS REGLAJES O LOS PASOS REQUERIDOS EN FORMA DIVERSA DE LA AQUÍ EXPUESTA PUEDE REDUNDAR EN EXPOSICIÓN PELIGROSA A LA RADIACIÓN.
NO ABRA LAS TAPAS NI HAGA REPARACIONES USTED MISMO. EN CASO DE PRODUCIRSE ANOMALÍAS SOLICITE AYUDA DE PERSONAL CUALIFICADO.

(Inside of product)

Suggestions for Safety

■ Use a standard AC wall outlet

1. **Use from an AC power source of high voltage, such as for an air conditioner, is very dangerous.**
   There is the possibility that a fire might be caused by making such a connection.
2. **A DC power source cannot be used.**
   Be sure to check the power source carefully, especially on a ship or other place where DC is used.

■ Grasp the plug when disconnecting the power supply cord

1. **Wet hands are dangerous.**
   A dangerous electric shock may result if the plug is touched by wet hands.
2. **Never place heavy items on top of the power supply cord, and never force it to bend sharply.**

■ Place the unit where it will be well ventilated

Place this unit at least 10 cm (4") away from wall surfaces, etc.

■ Avoid places such as the following:

In direct sunlight or in other places where the temperature is high.
In places where there is excessive vibration or humidity.
Such conditions might damage the cabinet and/or other component parts and thereby shorten the unit's service life.

■ Be sure to place the unit on a flat, level surface

If the surface is inclined, a malfunction may result.

■ Never attempt to repair or reconstruct this unit

A serious electric shock might occur if this unit is repaired, disassembled or reconstructed by unauthorized persons, or if the internal parts are accidentally touched.

■ Take particular care if children are present

Never permit children to put anything, especially metal, inside this unit. A serious electric shock or malfunction could occur if articles such as coins, needles, screwdrivers, etc. are inserted through the ventilation holes, etc. of this unit.

■ If water is spilled on the unit

Be extremely careful if water is spilled on the unit, because a fire or serious electric shock might occur. Immediately disconnect the power cord plug, and consult with your dealer.

■ Avoid spray-type insecticides

Insecticides might cause cracks or "cloudiness" in the cabinet and plastic parts of this unit. The gas used in such sprays might, moreover, be ignited suddenly.

■ Never use alcohol or paint thinner

These and similar chemicals should never be used, because they might cause flaking or cloudiness of the cabinet finish.

■ Disconnect the power supply cord if the unit will not be used for a long time

If the unit is left for a long time with the power ON, this will not only shorten its useful operation life, but may also cause other troubles.

■ If trouble occurs

If, during operation, the sound is interrupted or indicators no longer illuminate, or if abnormal odor or smoke is detected, immediately disconnect the power cord plug, and contact your dealer or an Authorized Service Center.

Before Use

Be sure to disconnect the mains cord before adjusting the voltage selector.
Use a minus (−) screwdriver to set the voltage selector (on the rear panel) to the voltage setting for the area in which the unit will be used.

(If the power supply in your area is 117 V or 120 V, set to the "110–127 V" position.)
Note that this unit will be seriously damaged if this setting is not made correctly. (There is no voltage selector for some countries; the correct voltage is already set.)

THIS TUNER/RECEIVER IS CAPABLE OF RECEIVING THE NEW AM STEREO BROADCASTS FROM THE AM BAND RADIO STATIONS. HOWEVER LIKE MANY TUNERS AND RECEIVERS CURRENTLY AVAILABLE ON THE MARKET IT WILL REPRODUCE THIS AM STEREO SIGNAL ONLY IN AM MONO, WHICH, IN EFFECT, IS OF NO LESSER QUALITY THAN YOUR EXISTING AM MONO TUNER/RECEIVER.

Placement Notes

■ **This unit is a precision instrument. Be sure to place it on a flat surface.**

■ **Avoid places such as the following:**

- Near any equipment or device that generates strong magnetism.
- On any heat-generating equipment or device, or in any place where the temperature is high (35°C 95°For higher).
- Extremely cold places (5°C 41°For below).
- For long periods of time in direct sunlight.
- In dusty or smoky locations.
- In locations prone to vibrations.
- In locations where the rear panel is less than 10 cm (about 4") away from the wall or back of an audio rack.
- Within reach of children.

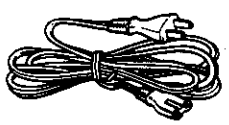
■ **When carrying or storing the unit, handle it with care so it is not subjected to any strong bumps.**
Always remove the disc before storing the unit for any period of time.

■ **To avoid problems due to vibration.**

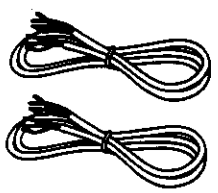
- Do not place a book or similar object under this unit.

Accessories

- AC power supply cords (1)

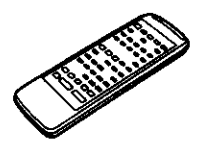


- Speaker cords (2)



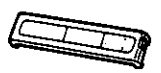
- FM indoor antenna (1)

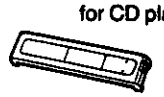
- Remote control transmitter (1) (RAK-SC511W)

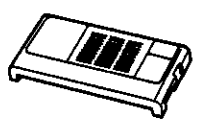


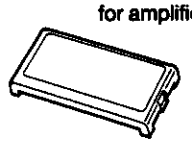
- Flat cables (2)

- Back cover (4)


for CD player

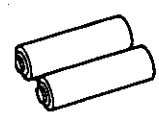

for tuner


for amplifier


for cassette deck

- LW/MW loop antenna (1) and Antenna holder (1) and mounting screws (2)

- Remote control batteries (2)



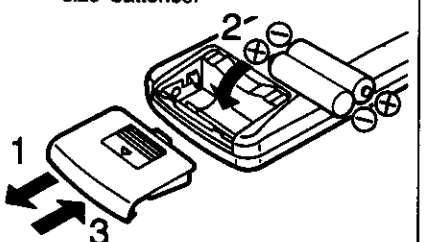
- Power plug adaptor..... 1
(For areas except Australia)

Note: The configuration of AC power supply cord differs according to area.

Remote-Control Transmitter

Insertion of remote-control transmitter batteries

1. Open the cover.
2. Insert the batteries.
- Be sure to insert according to the (+) and (−) indications in the battery compartment.
- Use two UM-4 "AAA" (R03 1.5 V) size batteries.



3. Close the cover.

■ Battery life

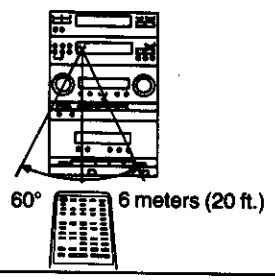
Battery life is about one year. (Battery life may vary depending upon the frequency of use and other conditions of use.)
The batteries should be replaced if the unit cannot be operated even when the remote-control transmitter is brought close to the unit.

■ Battery notes

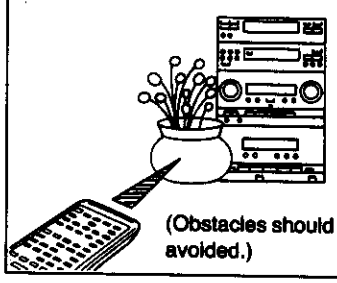
- Be sure that batteries are inserted so that they are placed correctly with respect to the (+) and (−) indications in the battery compartment. If the batteries are not inserted correctly, they may leak and damage the remote-control transmitter.
- Do not use rechargeable (nickel-cadmium) type batteries.
- Do not mix old and new batteries, or batteries of different types (carbon and alkaline, etc.).
- If the remote-control transmitter is not to be used for a long period of time, take out the batteries and store them in a cool, dark place.
- Remove and dispose of worn-out batteries.
- Never attempt to recharge or short-circuit the batteries, and do not disassemble them or expose them to excessive heat or throw them into a fire.
- If a battery leaks, remove both batteries and dispose of them, and then thoroughly clean the battery compartment before inserting new batteries.

Remote-control transmitter operation notes

Use the remote-control transmitter within 6 meters (20 ft.).

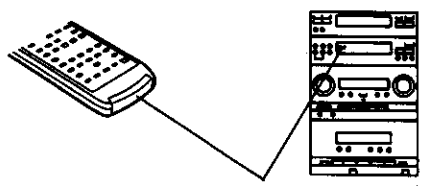


Face it toward the remote-control signal receptor of this unit.



(Obstacles should be avoided.)

Be sure the transmitter part of the remote-control transmitter and the receptor part of this unit are free from dust.
Excessive dust might prevent reception.



Avoid dust.

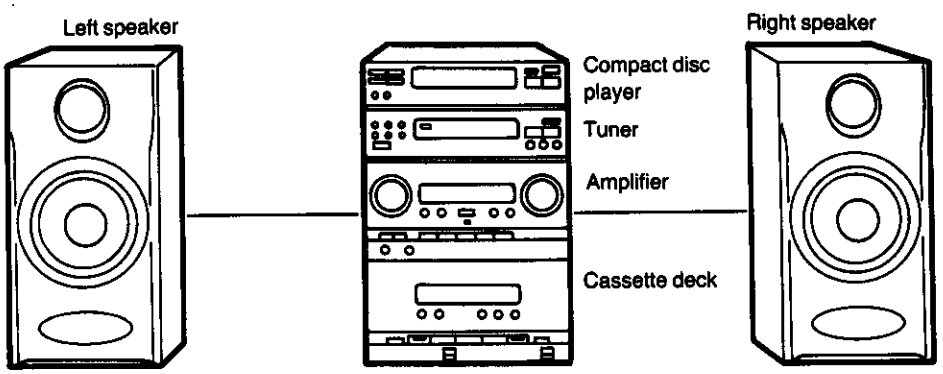
Other notes

1. Do not expose the receptor (on this unit) to direct sunlight or other strong light, because to do so might result in incorrect operation.
2. Do not use a remote-control transmitter for a TV set, a VCR or other video component at the same time as this remote-control transmitter is being used, because to do so might result in incorrect operation.
3. If this unit is installed in a rack with glass doors, the glass doors' thickness or color might make it necessary to use the remote-control transmitter a shorter distance from the unit.

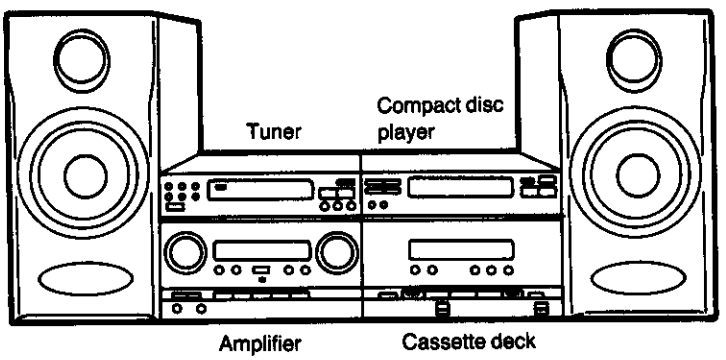
How to Install the System

Install the various components as shown in the figure.

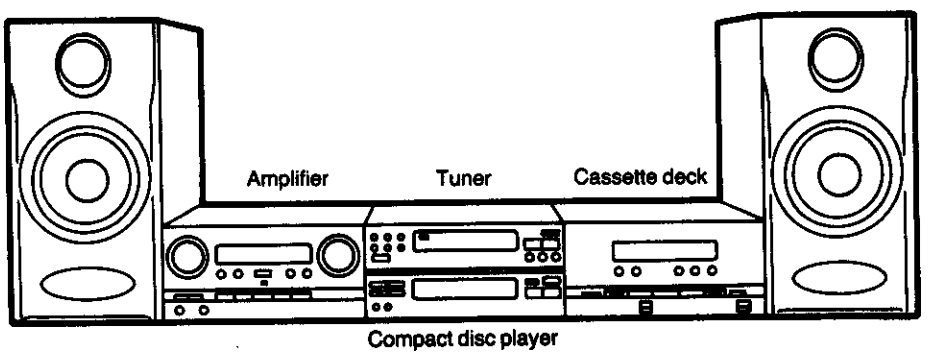
Installing the components vertically



Installing the components horizontally



Installing the components on a line



Connections

Flat cables

After connection, please fold and press the cable as flat to the back of the unit as possible.

From the amplifier to the cassette deck

(Blue) (Blue)

From the compact disc player via the tuner to the amplifier

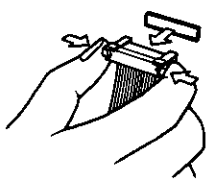
(Black) (Black)

Connecting

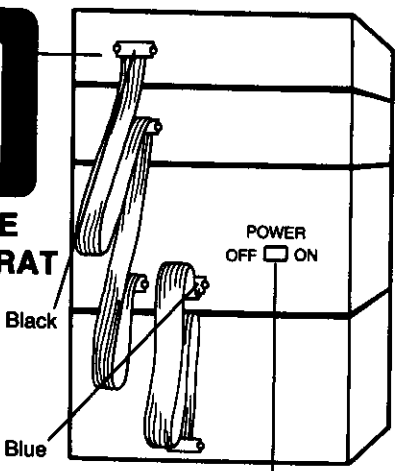
Hold the connector with the recessed part up and press in at the center until you hear a click.

The white line should be on the right side.

Disconnecting

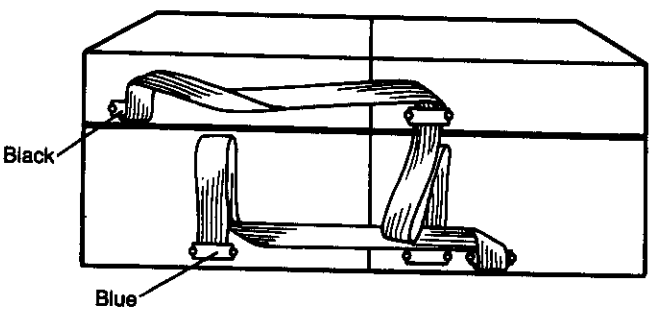


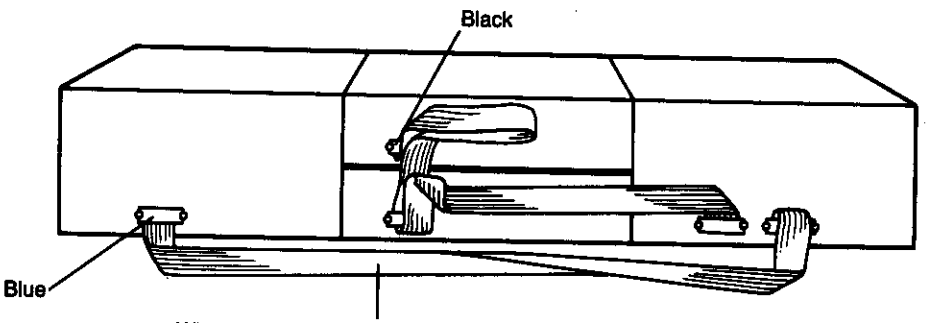
LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT



For Australia

Power switch is located on the rear panel. Make sure that the power switch on the back of the amplifier is switched ON.





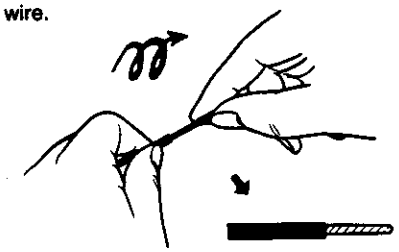
When installing the back cover, put this flat cables out of the back cover.

Connections (continued)

Speaker cables

Other types of speaker cannot be connected to this unit. Match the four wires from the left and right speaker cables with the same colored levers of the speaker terminales, then insert the wires into the respective terminals.

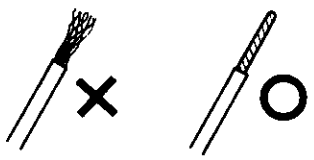
① Twist the wire.



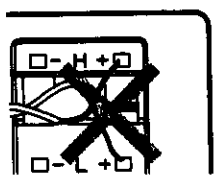
② Push down on the lever, insert the bare ends of the wires, and push up the lever. (Refer to the right)

Note:

- Make sure the bare ends of the wires are not unraveled. (If they are, twist them tight again.)



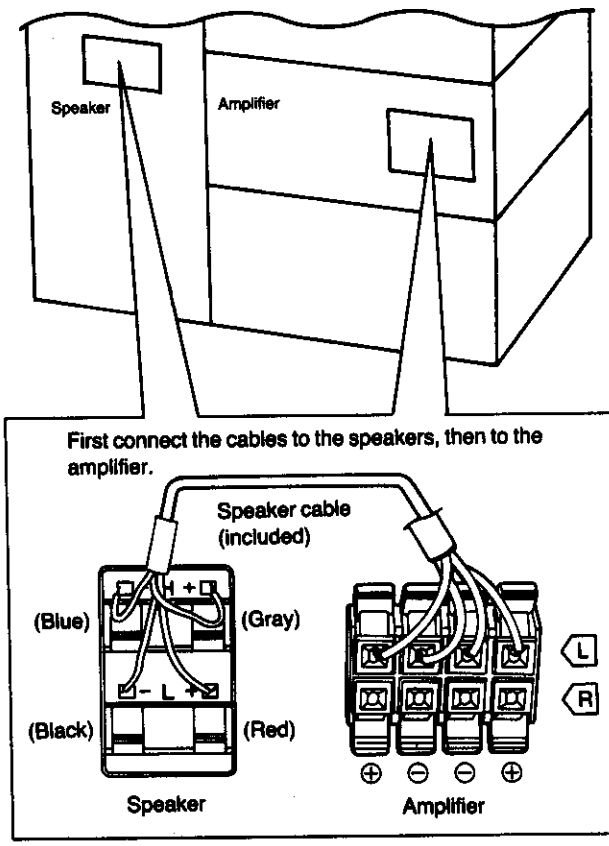
- Take care not to short the wires. (The main unit could be damaged if they are shorted.)



Notice for speaker connections:

Connect each color coded wire of the speaker cable to the corresponding color coded terminal according to the following chart.

Polarity	–	+
High tone	Blue	Gray
Low tone	Black	Red



The indication AM used here includes both MW and LW.

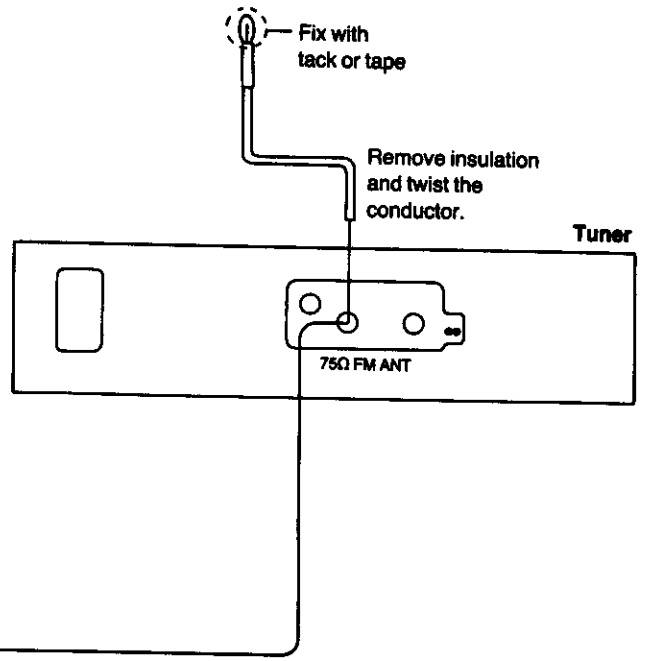
FM antenna

■ FM indoor antenna (included)

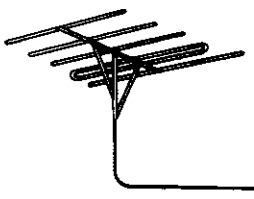
Install this antenna on a wall at a height and in a direction which result in the best reception.

For best reception sound quality:
An FM outdoor antenna is recommended.

Notes:
- The tack used to fix the internal antenna wire should not come into contact with the bare wire.
- Disconnect the antenna if an FM outdoor antenna is installed.



FM outdoor antenna

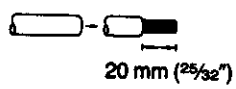


■ FM outdoor antenna (not included)

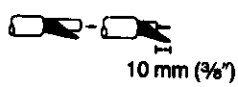
If the FM indoor antenna does not provide satisfactory reception, an outdoor antenna should be used.
The outdoor antenna may be required in a mountainous region, or if this unit is located inside a reinforced-concrete building, etc.

How to connect a 75-ohm coaxial cable

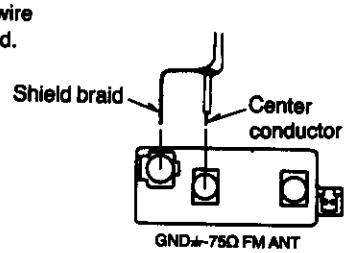
① Remove a piece of the outer vinyl sheath from the end.



② Bundle the shield braid, and remove a piece of the inner vinyl sheath covering the core wire.



③ Connect the core wire and the shield braid.



Connection (continued)

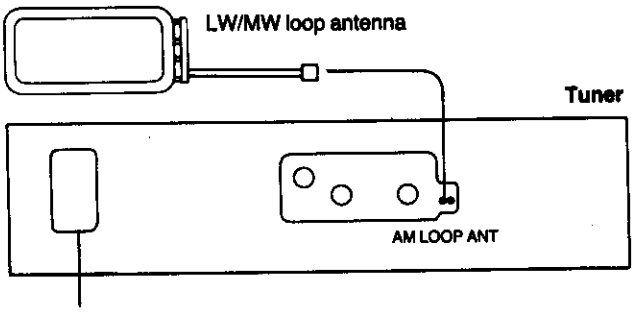
LW/MW antenna

■ LW/MW loop antenna (included)

Mount the antenna on a wall or at the tuner at a height and the direction which results in the best reception.

Notes:

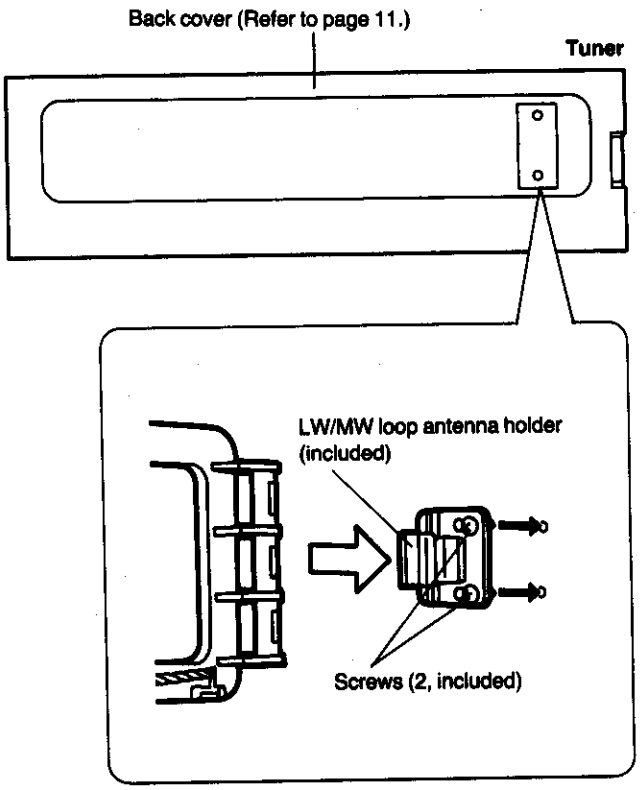
- If this antenna is not connected, LW/MW broadcasts can't be received.
- Be sure to connect the LW/MW loop antenna even when an outdoor antenna is used.



Install the LW/MW loop antenna holder at the back of the unit without backcover.

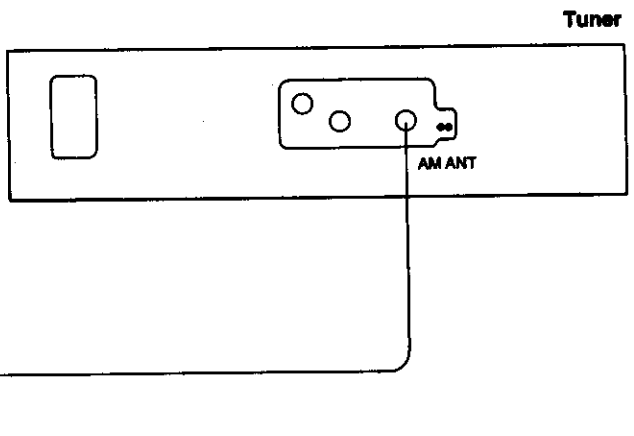
•How to install the LW/MW loop antenna

After installing the back cover, install the antenna.
In case not to use the back cover, install the antenna at the back of the tuner. (See above.)
To minimize noise pickup, keep the loop antenna away from the speaker cable, power cord and metal surfaces.



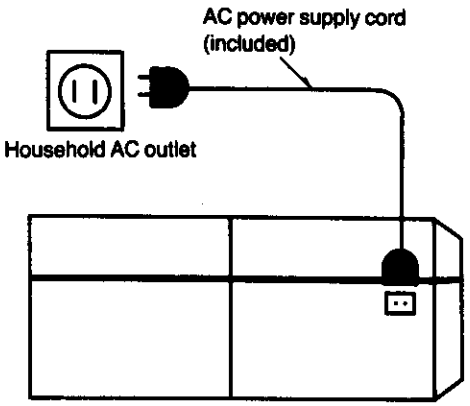
■ LW/MW outdoor antenna (not included)

An outdoor antenna may be required in a mountainous region, or if this system is located inside a reinforced-concrete building, etc.



AC power supply cord

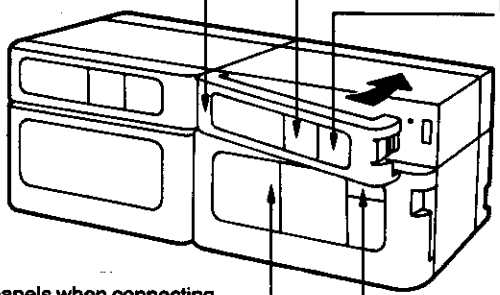
Connect the AC power supply cord after all other cables have been connected and the back covers are installed.



For areas except Australia
If the power plug will not fit your socket, use the power plug adaptor (included).

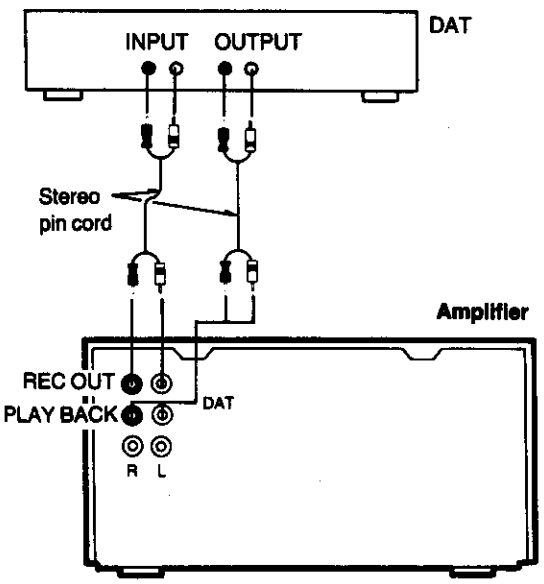
Install the back covers

Put each back cover in the left side hole first, and then in the right side.

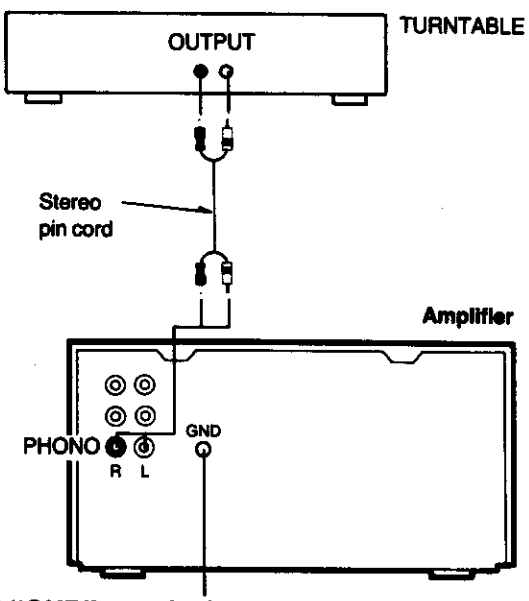

Remove these panels and run the coaxial cable through here when installing an FM antenna.
LW/MW loop antenna location
Remove these panels when connecting an external unit.
Opening for the AC power supply cord and the speaker cables.

External unit connection

■ DAT (digital audio tape deck)



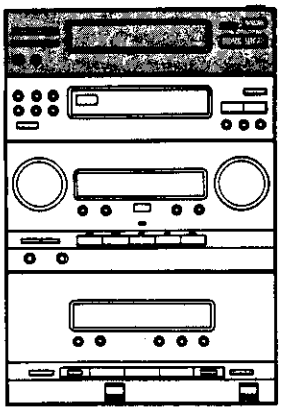
■ PHONO (turntable system)

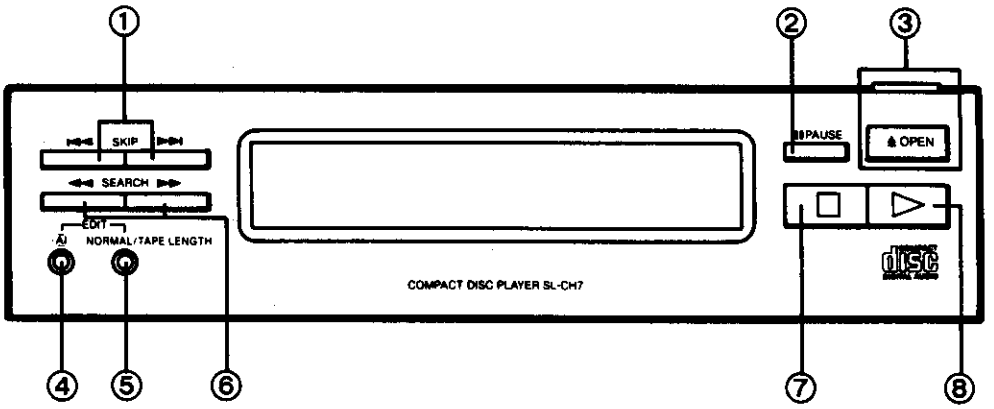


■ "GND" terminal

This terminal is for use with turntables which have a ground wire.

Front Panel Controls and Functions





Compact disc player: control section

① **Skip buttons (⏮ SKIP ⏭)**
Press one of these buttons briefly to move the pickup (backward and forward) to the beginning of a specific track.

② **Pause button (⏸ PAUSE)**

③ **Disc tray open/close button (⏏ OPEN, ⏏ OPEN/CLOSE)**
Used for opening and closing the disc tray.

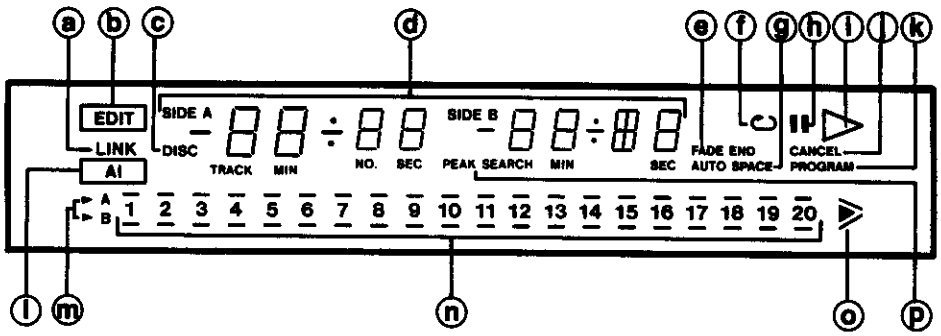
④ **AI edit-recording button (AI)**
This button is used to make an AI edit-recording.

⑤ **Edit mode button (NORMAL/TAPE LENGTH)**
This button can be used to choose one of the edit modes or to specify the tape length to be used.

⑥ **Search buttons (◀◀ SEARCH ▶▶)**
Use these buttons to move the pickup forward and backward.

⑦ **Stop button (□)**

⑧ **Play button (▷)**



Compact disc player: display section

ⓐ Link indicator (LINK)
Illuminates when the unit is in a condition the disc link is possible.

ⓑ Edit indicator (EDIT)
Illuminates when edit-recording a CD.

ⓒ Disc indicator (DISC)
Illuminates when a disc has been loaded.

ⓓ Multi-display
This display shows the track number and elapsed play time of the current track, or the remaining time of the tape while the unit is in the CD-edit mode. ("SIDE A" or "SIDE B" illuminates.)

ⓔ Fade end indicator (FADE END)
Illuminates when the unit is normal edit mode, and illuminates to show fading at the end of the tape.

ⓕ Repeat indicator (↻)
Illuminates when the repeat mode is activated.

ⓖ Auto space indicator (AUTO SPACE)
Illuminates during edit-recording of compact discs, and shows that the auto space function is activated.

ⓗ Pause indicator (❚❚)
Illuminates when the pause mode is activated.

ⓘ Play indicator (▷)
Illuminates when the play mode is activated.

ⓙ Program cancel indicator (CANCEL)
Illuminates when the programmed track can be cancelled.

ⓚ Program play indicator (PROGRAM)
Illuminates during program play.

ⓛ AI edit-recording indicator (AI)
Illuminates when AI edit-recording mode is activated.

ⓜ Tape side indicator (▶ A, ▶ B)
Shows the tape side (A or B) to be recorded on when performing the edit-recording of compact disc.

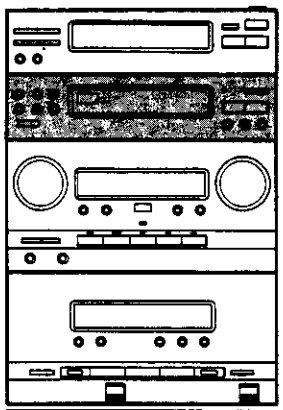
ⓝ Track number indicator (1–20)
Shows the number of tracks.

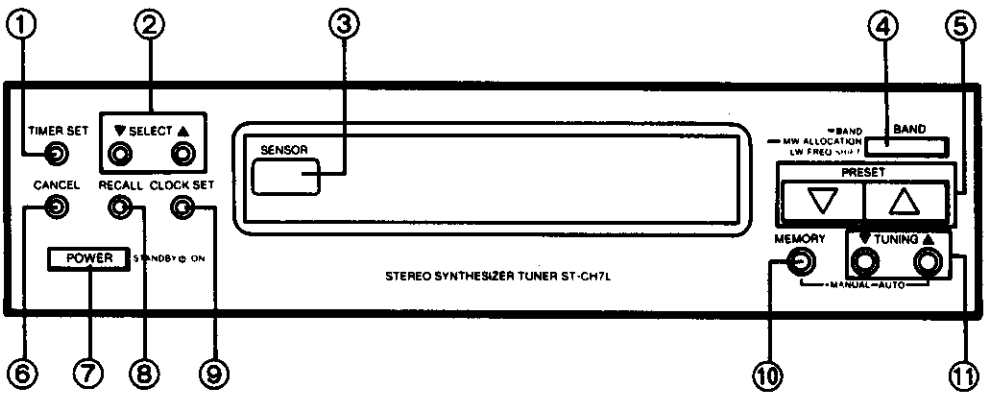
ⓞ "Over" mark (⩥)
This indicator illuminates if the total number of tracks on the disc is 21 or more.

ⓟ Peak search indicator (PEAK SEARCH)
Illuminates while the CD player automatically scans for the peak level on the CD. (See page 45.)
When peak search ends, "PEAK" flashes to indicate the peak level.

Front Panel Controls and Functions

(continued)





The indication AM used here includes both MW and LW.

Tuner: control section

① Timer set button (TIMER SET)
This button is used when making the timer setting.

② Timer select buttons (▼ SELECT ▲)
These buttons are used when setting the time. And when making the timer setting, to select the type of timer operation, the day, the time, etc.

③ Remote signal sensor (SENSOR)

④ Band select button (BAND)
This button is used to select either the MW, LW or FM band.

⑤ Preset-tuning buttons (▽ PRESET △)
These buttons are used to select channel numbers for a broadcasting station which has been stored in the tuner's memory.

⑥ Timer cancel button (CANCEL)
This button is used to cancel the timer setting.

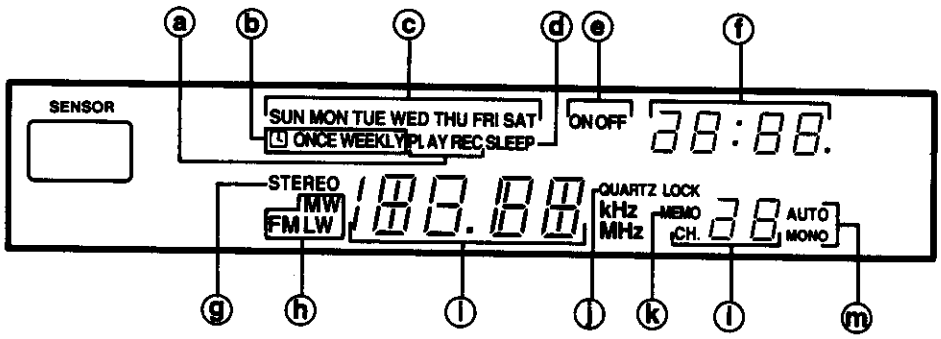
⑦ Power "STANDBY ⏻/ON" switch (POWER STANDBY ⏻ /ON)
This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the STANDBY ⏻ position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

⑧ Timer setting confirmation button (RECALL)
This button is used to confirm the timer setting.

⑨ Clock set button (CLOCK SET)
This button is used to set the present time.

⑩ Memory button (MEMORY)
This button is used when presetting broadcast station frequencies into memory.

⑪ Tuning buttons (▼ TUNING ▲)
These buttons are used for tuning the desired broadcast station.



Tuner: display section

ⓐ Timer play/recording indicator (PLAY, REC)
This indicator shows that timer play mode or timer recording mode is activated.

ⓑ Timer mode-indicator (ONCE, WEEKLY)
This indicator shows the timer operation mode (ONCE or WEEKLY).

ⓒ Day display (SUN–SAT)
This display shows the present day, or the day the timer has been set for, if used.

ⓓ Sleep indicator (SLEEP)
Illuminates when the sleep timer is activated. (See page 52.)

ⓔ Timer ON/OFF indicator (ON, OFF)
This indicator shows whether the times for timer switch-ON and switch-OFF have been set.

ⓕ Time display
This display shows the present time, or the day the timer has been set for.

ⓖ FM stereo indicator (STEREO)
This indicator automatically illuminates when an FM stereo broadcast is being received. It will not illuminate if the FM mode button is used to select monaural mode.

ⓗ Band indicator (FM, MW, LW)
Illuminates to show which band is selected.

ⓘ Digital frequency display
Displays the broadcast frequencies.

ⓙ Quartz lock indicator (QUARTZ LOCK)
This indicator illuminates when the unit is precisely tuned to a broadcast station.

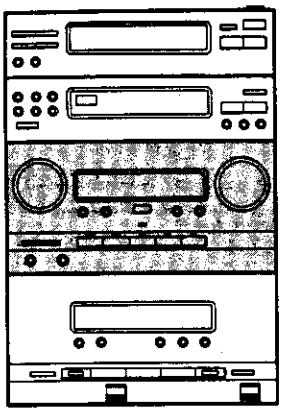
ⓚ Memory indicator (MEMO)
This indicator illuminates when the memory button is pressed.

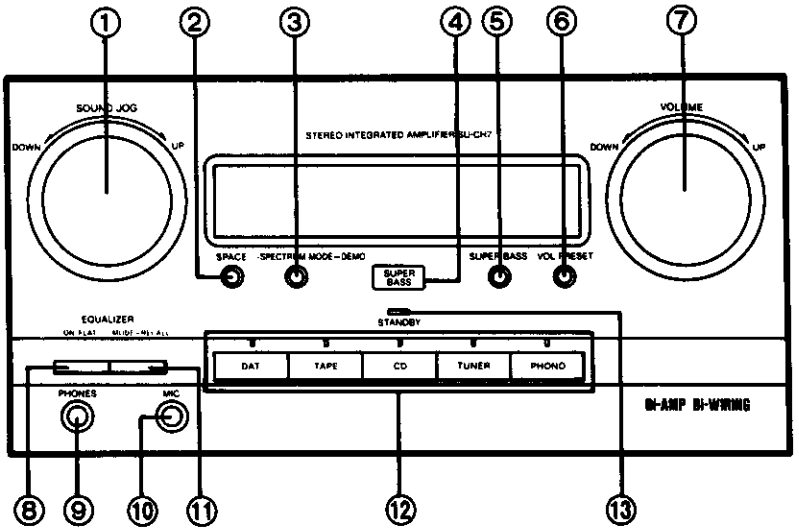
ⓛ Preset channel display
This display shows the channel number selected the preset-tuning buttons.

ⓜ FM mode indicator (AUTO, MONO)
When FM broadcasts are being received, usually the "AUTO" indication is illuminated. When the FM mode is set to monaural, "MONO" illuminates.

Front Panel Controls and Functions

(continued)





Amplifier: control section

① Sound effect level control (SOUND JOG)
This control is used for adjusting the level of the ambience enhancement effect and the equalization level.

② Ambience enhancement button (SPACE)
This button is used to activate ambience enhancement mode.

③ Spectrum mode-select/demonstration button (-SPECTRUM MODE—DEMO)
This button is used to select one of the six spectrum curves. If you press and hold this button, six types of sound effects (spectrum curve in combination with ambience enhancement) will be sequentially changed (Demonstration mode).

④ Super bass indicator
Illuminates when the super bass mode is activated.

⑤ Super bass button (SUPER BASS)
When this button is pressed, the dynamic low frequency ranges are boosted.

⑥ Volume preset button (VOL. PRESET)
This button is used to make a volume presetting.

⑦ Volume level control (VOLUME)
This control is used to adjust the volume level (−82 dB~ 0 dB). Note that −82 dB is the lowest volume setting and 0 dB is the highest level setting.

⑧ Equalization function button (ON/FLAT)
This button is used to switch the equalization correction function. If no equalization correction is desired, press this button again to cancel the function.

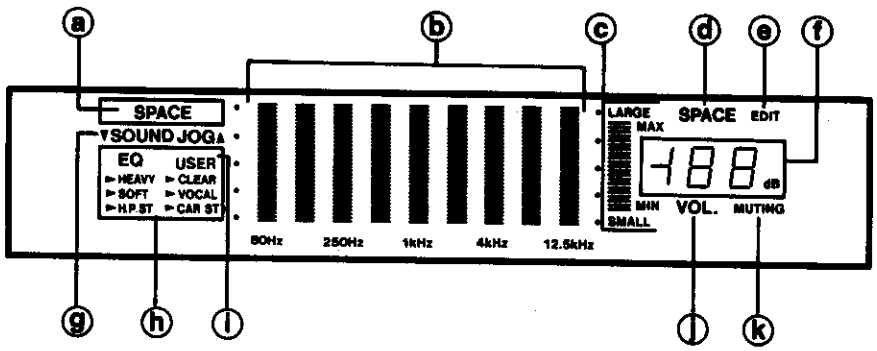
⑨ Headphones jack (PHONES)

⑩ Microphone jack (MIC)

⑪ Equalization mode-select/recall button (-MODE—RECALL)
This button is used to retrieve a pre-programmed equalization curve from the memory. If you press and hold this button, a curve you programmed can be retrieved.

⑫ Input selectors and indicators
These selectors are used to select the sound source to be heard. When the sound source is selected, the indicator above the selector will illuminate.

⑬ Standby indicator (STANDBY)
This indicator illuminates when the power "STANDBY⏻/ON" switch of the unit or that of the remote control is switched "OFF". Its purpose is to alert the user of the constant supply voltage to the internal circuitry even with the power switch OFF.
For this unit, even if this switch is switched to the "STANDBY" position, there is still a slight power consumption of about 17 watts: this is in order to retain of the "most recent" memory and the preset-memory functions.



Amplifier: display section

ⓐ Ambience enhancement mode indicator (SPACE)
Illuminates when the ambience enhancement mode is activated.

ⓑ Spectrum analysis display
This display shows the spectrum analysis level.

ⓒ Level meter
Display the volume level as it is being adjusted by the volume control. When adjusting the level of the ambience enhancement effect with the sound effect level control, the display shows the level of the ambience enhancement effect.

ⓓ Ambience enhancement adjustment indicator (SPACE)
Illuminates when adjusting the level of the ambience enhancement effect.

ⓔ CD edit indicator (EDIT)
Illuminates when making an edit-recording of a compact disc.

ⓕ Volume level display
Displays the volume level.

ⓖ Sound effect indicator (▼ SOUND JOG ▲)
When "▼" illuminates, it shows the equalization curves can be adjusted, and when "▲" illuminates, it shows that the ambience enhancement effect can be adjusted.

ⓗ Equalization mode indicators (HEAVY-CAR ST)
These indicators show which of the six equalization curves is currently used.

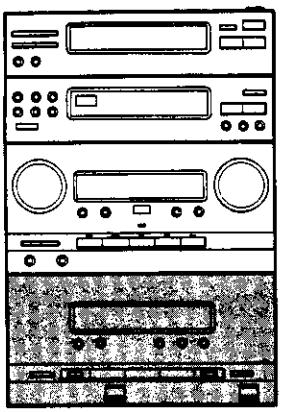
ⓘ "USER" indicator (USER)
This indicator illuminate to show that the desired equalization curves can be programmed into memory or retrieved from the memory.

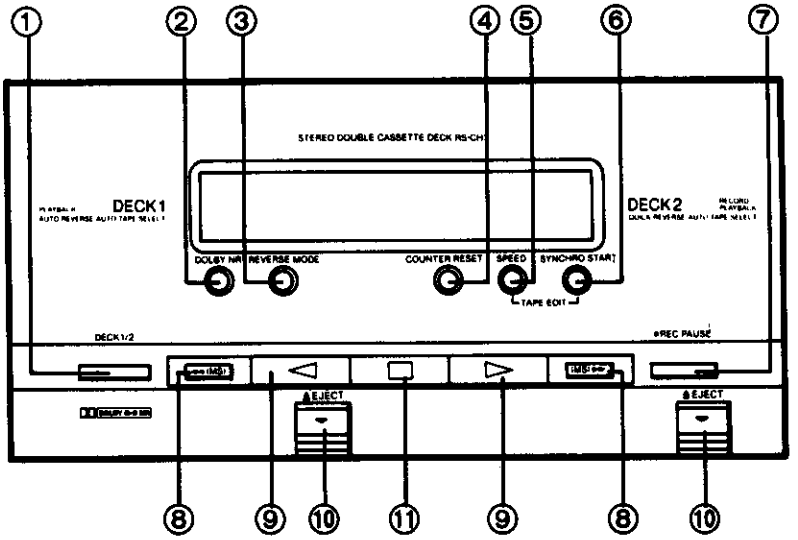
ⓙ Volume indicator (VOL.)
Illuminates when adjusting the volume level.

ⓚ Muting indicator (MUTING)
Illuminates when the muting mode is activated.

Front Panel Controls and Functions

(continued)





Cassette deck: control section

① Deck1/deck2 selector (DECK 1/2)
This button is used to select the deck to be operated.

② Dolby noise reduction button (DOLBY NR)
This button is used to reduce the hissing noise heard from the tape. This unit is provided with both the Dolby B-type and Dolby C-type noise reduction systems.

③ Reverse mode button (REVERSE MODE)
This button is used to select the reverse mode (for playback or recording).

④ Tape counter reset button (COUNTER RESET)
This button is used to reset the tape counter indicator to "000".

⑤ Edit speed button (SPEED)
This button is used to select the recording speed when edit-recording tapes.

⑥ Synchro-start button (SYNCHRO START)
This button is used to start a tape-to-tape recording, simultaneously starting deck 1 (the playback deck) and the deck 2 (the recording deck).

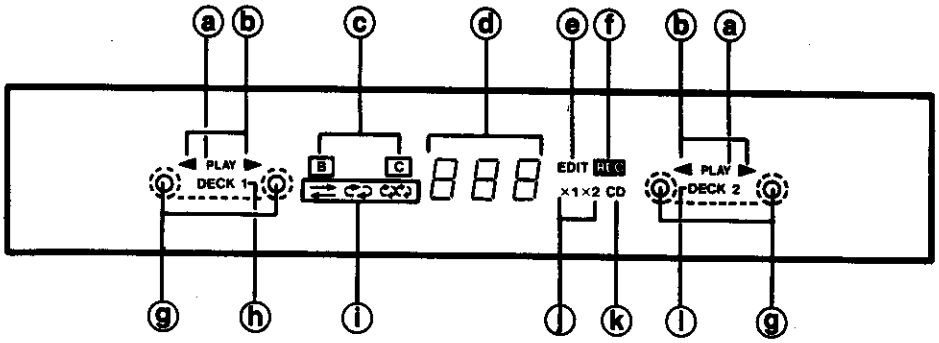
⑦ Record/record standby button (● REC PAUSE)
This button is used to put deck 2 into the record standby mode.

⑧ Fast-forward/rewind/music select buttons (◀◀ (MS), (MS) ▶▶)
These buttons are used to advanced or rewind the tape, or to quickly search for the beginning of a tune while the tape is being played.

⑨ Playback buttons (◁, ▷)
These buttons are used to start the playback or recording (Deck 2 only).

⑩ Eject button (▲ EJECT)
This button is used to open the cassette holder.

⑪ Stop button (□)
This button is used to stop the tape movement.



Cassette deck: display section

ⓐ Playback indicator (PLAY)
Illuminates to show that deck 1 or 2 is in the playback mode or recording mode (deck 2 only).

ⓑ Tape travel direction indicators (◀, ▶)
One of these indicators illuminates to show the direction of tape travel.

ⓒ Dolby noise reduction indicators (B, C)
Each indicator illuminates to show the type of Dolby noise reduction system selected by pressing the Dolby noise reduction button.

ⓓ Tape counter
Indicates the amount of tape movement separately for deck 1 or deck 2.

ⓔ Edit indicator (EDIT)
Illuminates when edit-recording tapes or CD.

ⓕ Recording indicator (REC)
Illuminates to indicate that deck 2 is in the recording standby or recording mode.

ⓖ Tape indicator
Illuminates to show that there is a tape in the cassette holder of deck 1 or deck 2.

ⓗ Deck 1 operating indicator (DECK 1)
Illuminates to show that deck 1 can be operated.

ⓘ Reverse mode indicators (⇄, ↻, ↻↻)
Each indicator illuminates to show which of the reverse modes was selected by the reverse mode button.

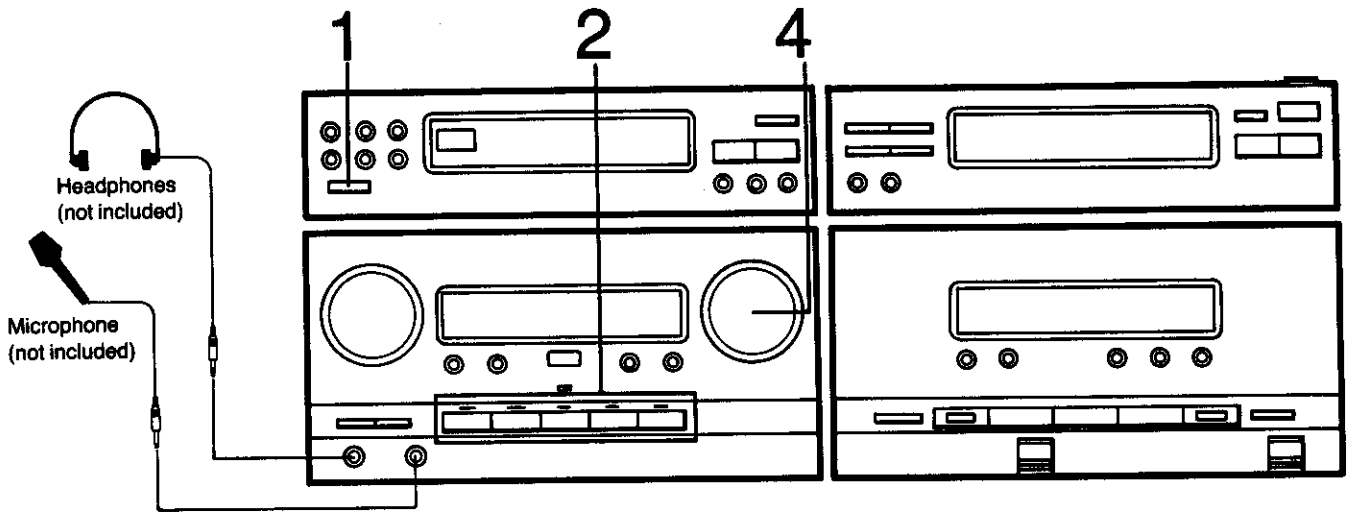
ⓙ Edit speed indicators (×1, ×2)
One of these indicators will illuminates to show which of the tape-to-tape recording speeds was selected by pressing the edit speed button.

ⓚ CD indicator (CD)
Illuminates when edit-recording a CD.

ⓛ Deck 2 operating indicator (DECK 2)
Illuminates to show that deck 2 can be operated.

Standard Operations

For Australia:
Has the power switch on the rear panel been switched ON? (See page 7.)



1 Switch ON the power.

2 Select the desired audio source.

DAT: Press this button to listen to the playback sound from the DAT.
TAPE: Press this button to listen to tapes.
CD: Press this button to listen to compact discs.
TUNER: Press this button to listen to radio broadcasts.
PHONO: Press this button to listen to phono discs.
If the tuner source is selected, the CD players power will be cut off.
The CD or tape will automatically stop when a different input mode is selected during its operation.

3 Start the sound source.

4 Adjust the volume level.

After listening is finished

Be sure to reduce the volume level, and switch this unit to standby mode using its "STANDBY⏻/ON" switch or an "ON/OFF" switch on the remote-control transmitter.

Note:
The input selection and equalizer settings will be retained (as they were at the time when the power is switched to standby mode) by the memory back-up function.

To listen through headphones

PHONES

Connect headphones (not included) to the headphones jack.

Notes:
- Reduce the volume level before connecting headphones.
- Sound from the speakers will not be heard when headphones are connected to this jack.
- Avoid listening for a long time at a volume level so high that it irritates the ears.
- Plug type: Stereo mini.

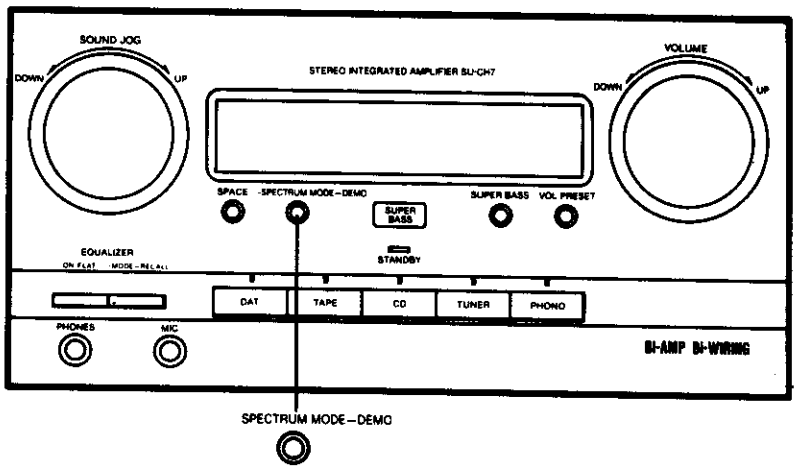
To use a microphone

MIC

Connect the microphone (not included) to the microphone jack after reducing the volume level.

If strange noises (squealing or howling) are emitted during mixing either change the direction of the microphone or turn down the volume.
It is possible to record a singing voice accompanying the tuner or CD.

- Plug type: Monaural mini.



Spectrum display

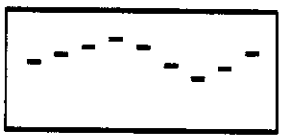
This shows the level of each sound range (frequency range). The following 6 types of display modes are possible.
Each time the spectrum mode-select demonstration button is pressed, the display mode changes.

1. Peak-hold display

The peak sound value of each sound range is held on the display for about one second after it occurs.

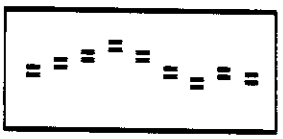
2. Dot display

Only the upper two parts of the bar display are shown, thus making the strength of the sound for each sound range even easier to see.



3. Hustler mode

The peak sound value of each sound range is displayed in augmented form.

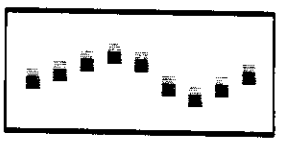


4. Aurora mode

The peak sound value of each sound range is displayed in inverted form.

5. Afterimage display

After indicating the peak sound value of each sound range, it will fall down giving an afterimage.



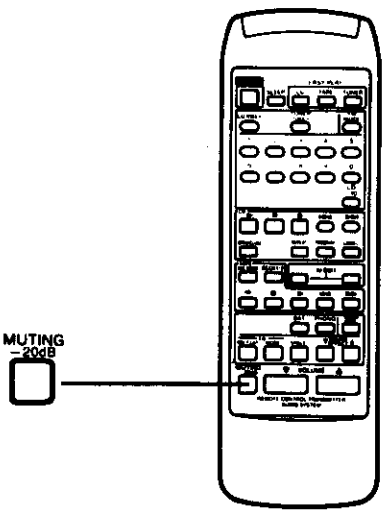
6. Repeat mode

Indicates each of 1 to 5 sequentially for about five seconds at a time.

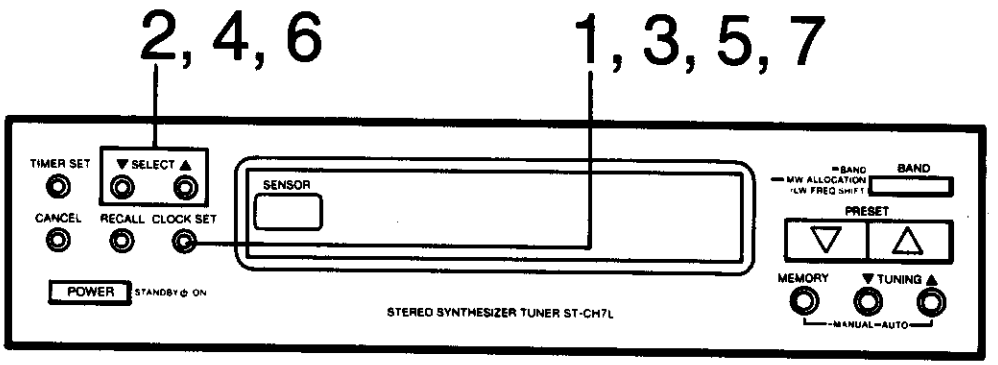
To temporarily reduce the volume level

MUTING

Press the muting button on the remote control transmitter. The volume level is attenuated by 20 dB (approx. 1/10).
If the audio output has been muted by the muting button on the remote control transmitter (the muting indicator is lit), the muted state can be cancelled by pressing the muting button once again or by setting the volume level to the "–– dB" position.



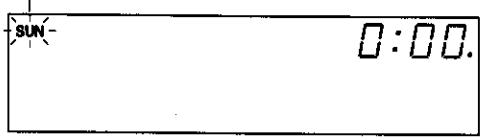
Setting the Time



For example:
To set the time to Wednesday at 16:45.

1 Press the clock set button.

Flashing will begin.



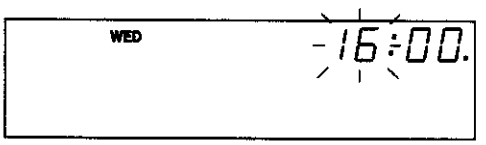
2 Select the day using the select button.

(to select "WED")

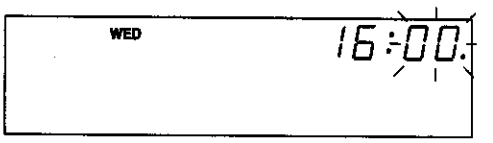
3 Press the clock set button.

4 Select the hour using the select button.

(to select "16")

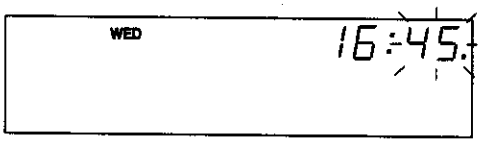


5 Press the clock set button.



6 Select the minute using the select button.

(to select "45")

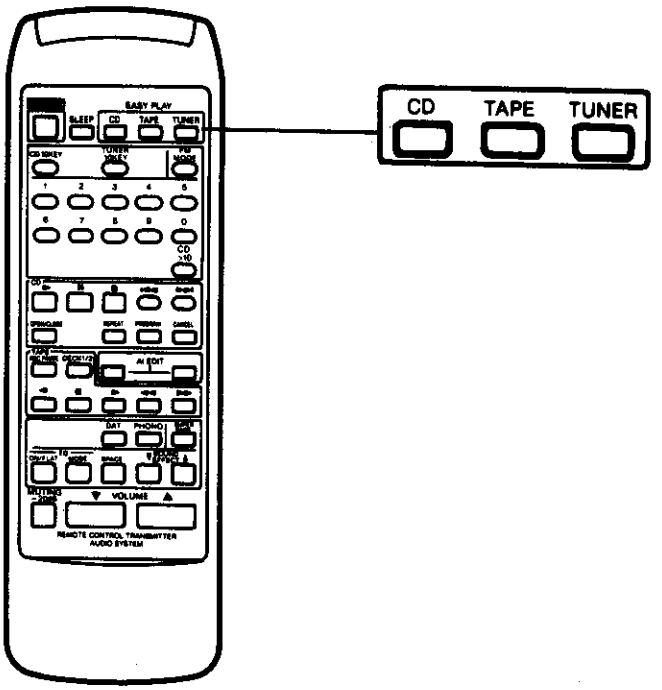


7 Press the clock set button to finish setting the time.

Dot indicator

Easy Play

You can start the play by simply pressing the easy play button on the remote control transmitter even when the power is switched to standby mode.

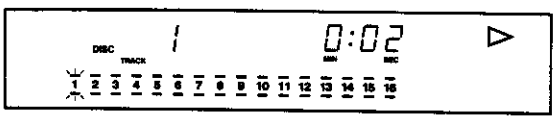


Listening to compact discs

CD

Press the easy play button marked "CD".

The play will start automatically from the first track.

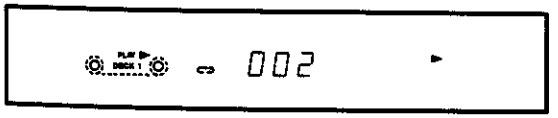


Listening to tapes

TAPE

Press the easy play button marked "TAPE".

The playback will automatically start under the same conditions (tape direction and reverse mode) last set when the power was switched OFF.
In case a tape has been loaded in both decks, deck 1 has priority.

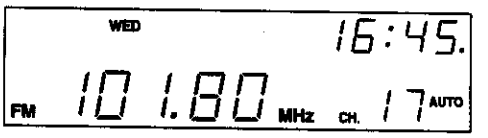


Listening to radio broadcasts

TUNER

Press the easy play button marked "TUNER".

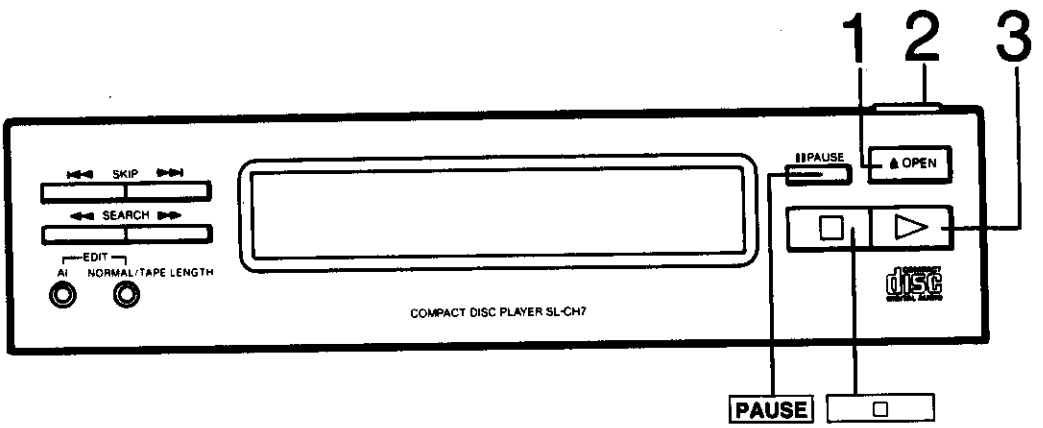
The station last tuned to when the power was switched to standby mode will be automatically received when power is switched ON.



About the volume level

If the volume level last set is less than −60 dB, it will automatically increase up to −60 dB gradually (fade in) during play. If the volume level last set is more than −58 dB, it will increase automatically up to level last set gradually (fade in) during play.

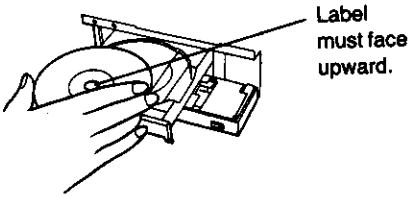
Listening to Compact Discs



Sequencial play

Carry out the steps 1 and 2 of "Standard Operations" on page 20.

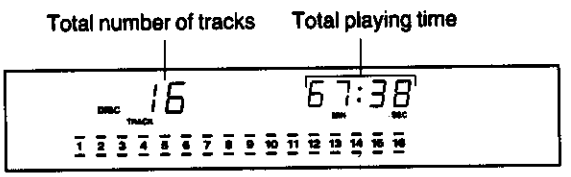
1 Press the open/close button to open the disc holder and insert a disc.



2 Press the open/close button again to close the disc holder.

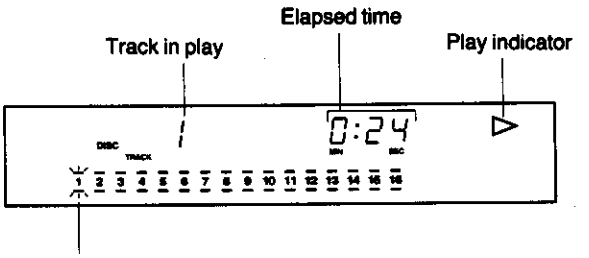
The total number of tracks on the disc and the total playing time are displayed.

Do not stick your finger through the hole in the middle of the disc holder. (It could get caught when the holder closes.)



3 Press the play button.

Disc play begins from the first track on the disc.



The bars above and below the number of the track in play flash. They go out when play finishes.

- The unit stops automatically when the last track on the disc finishes playing. (The display returns to the total number of tracks and total playing time indications.)

■ To stop disc play

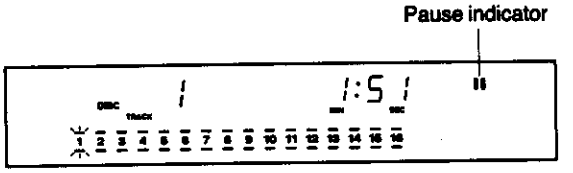
□

Press the stop button.
The unit switches to the stop mode and the total number of tracks and total playing time are displayed.

■ To temporarily stop disc play

PAUSE

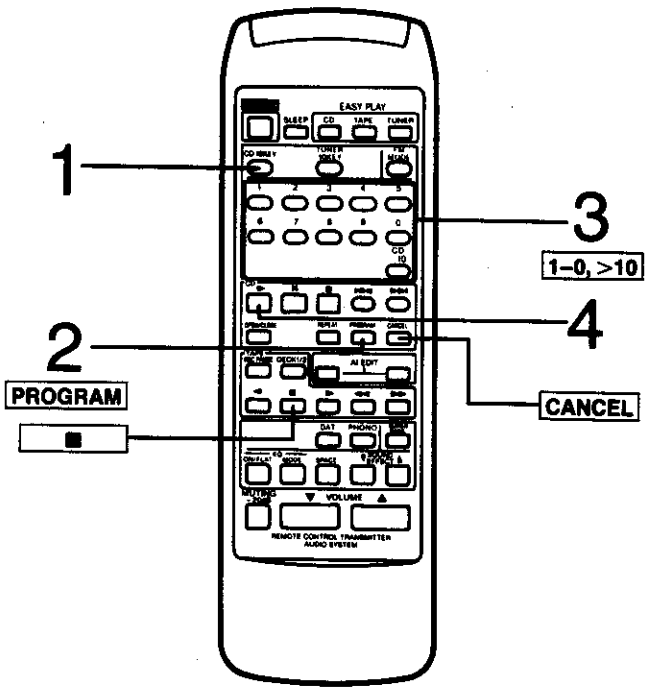
Press the pause button.



Press the play button to play again.

Notes:

- Attempting to change discs while the disc holder is in the process of opening can scratch or damage your discs.
- The total playing time displayed includes the silent sections between tracks. For this reason, it may differ by a few seconds from the playing time printed in the disc's liner notes.

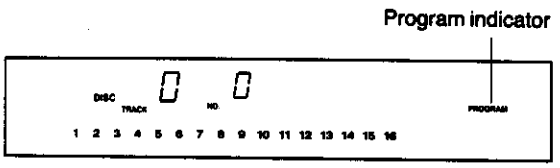


Program play

This function allows you to program up to 20 tracks on the disc in any order you choose.

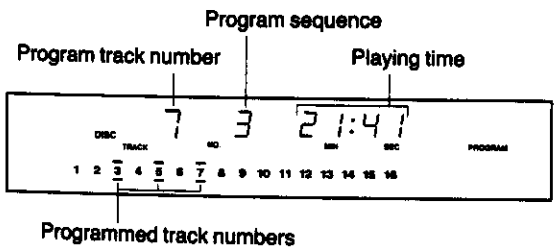
1 Press the function selector button marked "CD 10 KEY".

2 Press the program button.



3 Press the numeric buttons in the desired track sequence.

To program more than one track from the disc such as 3, 5 and 7 in that order:
Press the 3, 5, and 7 buttons.



To select a specific track
Tracks 1–9: Press the appropriate numeric button 1–9 directly.
Tracks 10 and up (For example, to select the track number such as 25): First press CD 10 KEY, then 2 to select the "tens" digit, and 5 to select the "units" digit.

Notes:
- If the total playing time exceeds 99 minutes or the track number 21 (or higher) has been specified, the display reads "––:––". But the program play can be performed.
- When the 21st program has been performed, "-F" (full) appears on the display, indicating that no more tracks can be added to the programmed sequence.

4 Press the play button.

The programmed sequence is played beginning from the first track you entered.

■ To cancel program play

PROGRAM

Press the program button while a disc is being played, and normal play will resume.

■ To enter additional program

1–0, >10

Press the numeric button corresponding to the track to be added.

■ To cancel an entire program

■

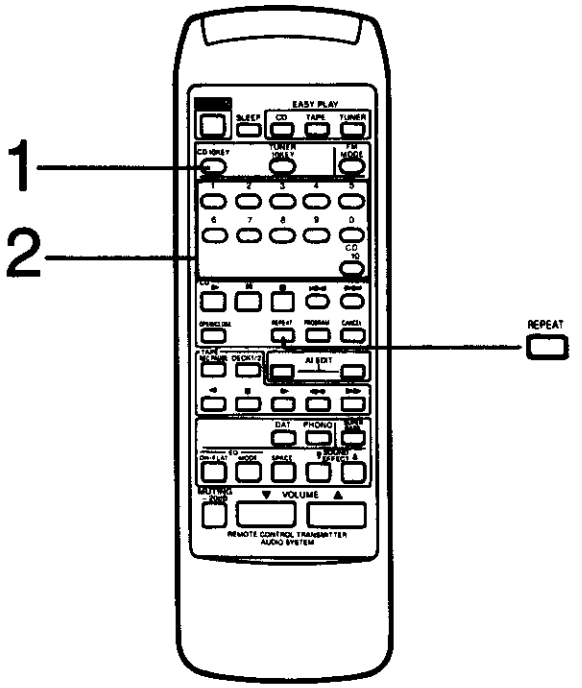
Press the stop button when a disc is not being played (or twice when a disc is being played). The entire program will be canceled.

■ To cancel the selected tracks one by one

CANCEL

① **Press the cancel button.**
The cancel indicator will illuminate.
② **Press the numeric button of the track to be cancelled.**
③ **Press the cancel button.**
The cancel indicator will go out.

Listening to Compact Discs (continued)



Direct access play

1 Press the function selector button marked "CD 10 KEY".

2 Press the numeric button corresponding to the desired track number.

For example:
To select the 3rd track, press the 3 button.

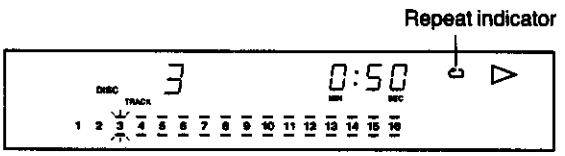
To select a specific track
Tracks 1–9: Press the appropriate numeric button 1–9 directly.
Tracks 10 and up (For example, to select a track number such as 25): First press CD ≥10, then 2 to select the "tens" digit, and 5 to select the "units" digit.

- The disc will be played from the designated track to the end and then automatically stop.

Repeat play

REPEAT

Press the repeat button.

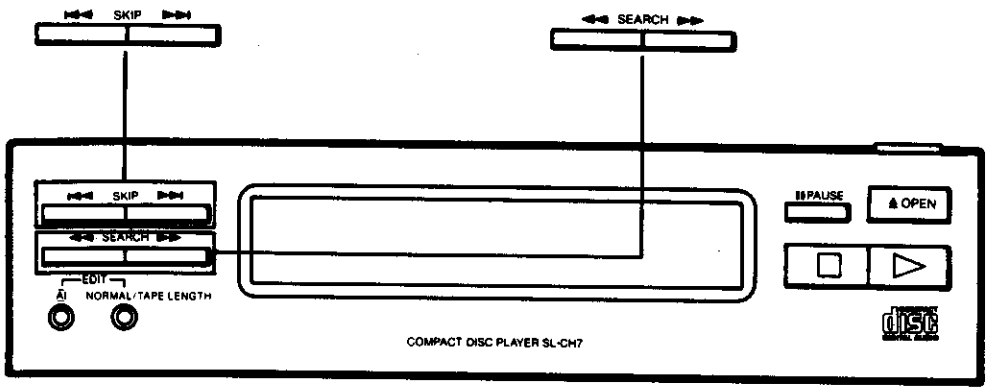


Pressing this button once again will cancel repeat play.

- While program play is taking place, only the programmed tracks will be played repeatedly.
- You can enjoy the same track repeatedly if one track only is programmed.

■ To cancel repeat play

Press this button once again.

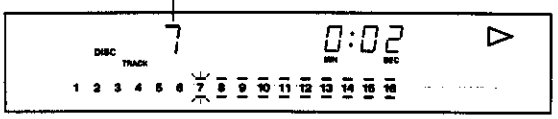


Skip play

SKIP

This function allows you to skip to the beginnings of tracks preceding or following the track in play and begins play immediately. It is a good idea to keep an eye on the track number display when using this function.

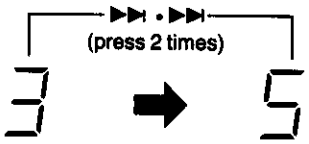
Track number display



•To skip forward, press the skip button (▶▶|).

The unit skip ahead one track each time the button is pressed.

For example, to skip from track 3 to track 5:



•To skip backward, press the skip button (|◀◀).

The first time the button is pressed, the unit skips back to the beginning of the track in play. Then it skips back one track for each additional press.

For example, to skip from track 5 to track 3 during play:

•If these buttons are pressed during program play, the pickup will skip from one track to another in the programmed sequence.

Search play

SEARCH

This function allows you to search rapidly forward or backward on the disc for specific sections.

•To search forward, press the search button (▶▶).

The unit begins searching in a forward direction.

•To search backward, press the search button (◀◀).

The unit begins searching in a reverse direction.

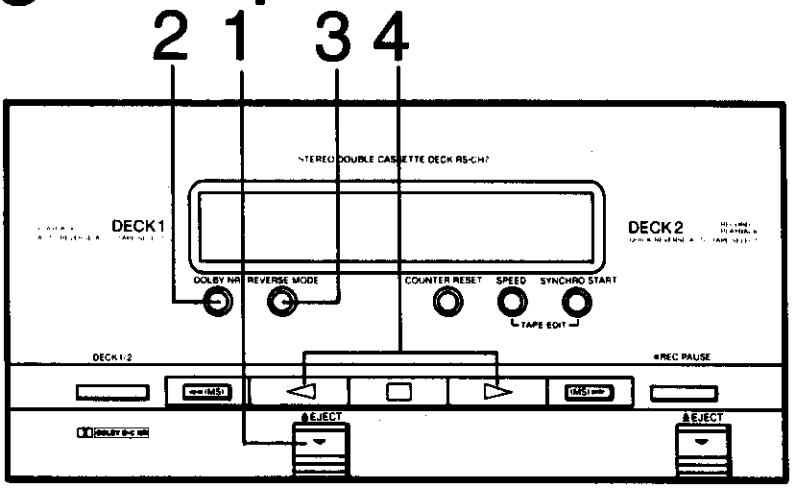
•Sound from the disc can be heard as the pickup moves. The output level at this time is decreased by 12 dB (¼) compared with the normal level.

•The search speed is slow when the button is pressed at first and becomes faster if you keep it pressed down. Release the button when you reach the desired point on the disc.

•During program play, a search will take place only within the track being played.

Listening to Tapes

Either tape deck 1 or tape deck 2 can be used for tape playback by following the same steps.



Carry out the steps 1 and 2 of "Standard Operations" on page 20.

1 Press the eject button, and then insert the cassette to be used for playback.

(The part of the cassette where the tape is exposed should face down-ward.)

2 Press the Dolby noise reduction button to set the Dolby NR mode B or C in which the tape was recorded.

The Dolby noise reduction indicator (B or C) will illuminate.

- If the tape was not recorded in a Dolby NR mode, press the Dolby noise reduction button again to go off the Dolby noise reduction indicator.

3 Select the reverse mode.

Each time the reverse mode button is pressed, one of the three reverse mode indicators (⇄ , ↻ , ↻↻) will be alternately displayed.

⇄ One side only will be played, and then the tape will automatically stop.

↻ Both sides will be played 8 times, then the tape will automatically stop.

↻↻ (When a cassette is loaded in only one ceck.) Both sides will be played, then the tape will automatically stop.
(forward side→reverse side)

4 Start playing the tape.

▷ The forward side (front side) will be played.

◁ The reverse side will be played.

- When the tapes are loaded in both decks, press the deck 1/deck 2 selector to select the deck to be used.
- To reset the tape counter (000), first press the deck 1/deck 2 selector to select the deck and press the counter reset button.

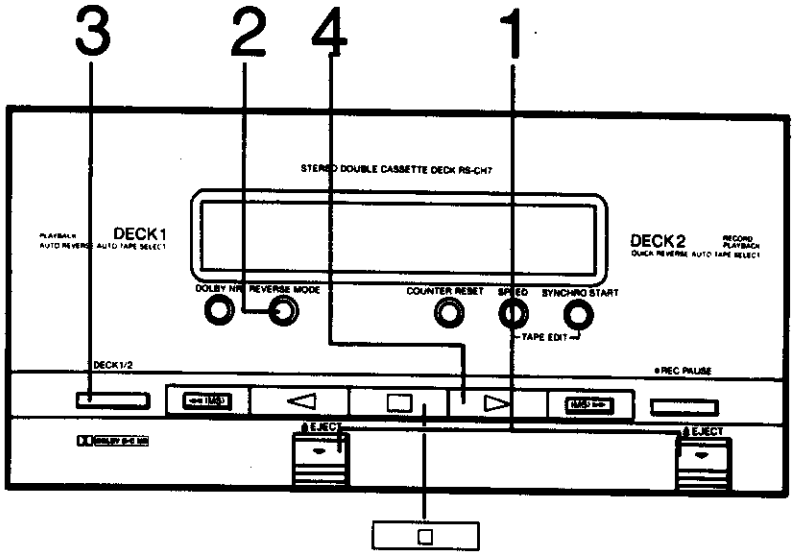
■ To stop tape playback

Press the stop button.

■ Auto tape selector function

This function automatically identifies the kind of tape loaded (normal, chrome, or metal), and sets the bias (for recording) and equalization accordingly.

- Types of tapes that can be played : normal, chrome, metal.



To listen to two tapes consecutively

1 Press the eject buttons, and then insert the cassettes in decks 1 and 2.

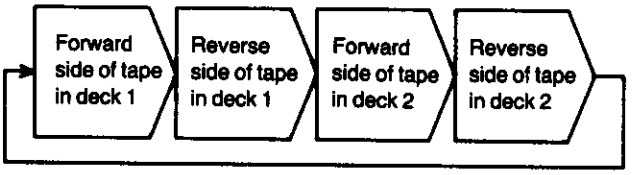
Be sure that the side that you wish to start to listen to is facing you, and load it in deck 1.

2 Press the reverse mode button to set the " ⇄ " mode.

3 Press the Deck 1/Deck 2 selector to select deck 1.

4 Start playing the tape in deck 1.

Two tapes will be played back as follows:



- After repeating above operation 8 times, the cassette deck will automatically stop.

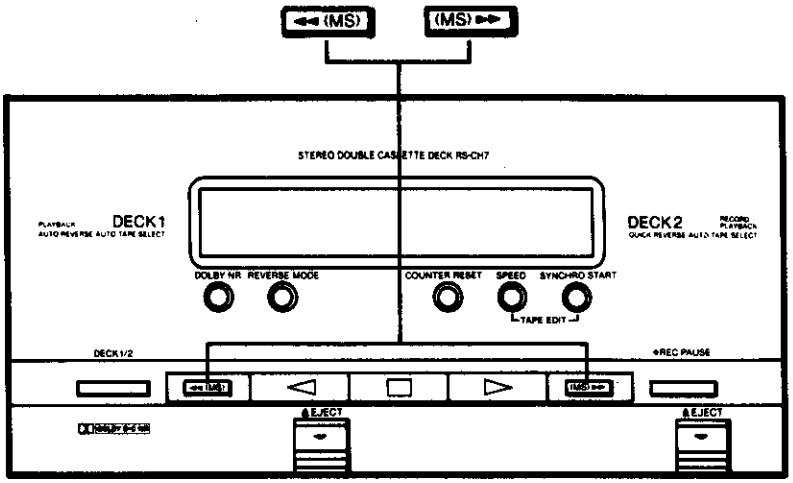
■ To stop the tape mid-way

Press the stop button of the deck in which the tape is currently playing.

Notes:

- You can also start playback from a position other than the forward side of the tape in deck 1.
- If playback is started from deck 2, the tape in deck 1 will play only seven times.

Listening to Tapes (continued)



To select beginning of a tune (MS: music select)

Press the music select button.

When the forward side (the "PLAY ▶" indicator is lit) is being played:

(MS) ...The tape will be played from the beginning of the next tune.

(MS) ...The tape will be rewound to the beginning of the present tune, then the tune will be played again.

•While a music select operation is taking place, the play indicator will flash.

When the reverse side (the "◀ PLAY" indicator is lit:) is being played, the reverse operation to the above will take place.

■ To fast forward or rewind the tape

If this button is pressed when the tape is stationary, the tape will start moving at high speed in the direction of the arrow, regardless of which side is being played back.

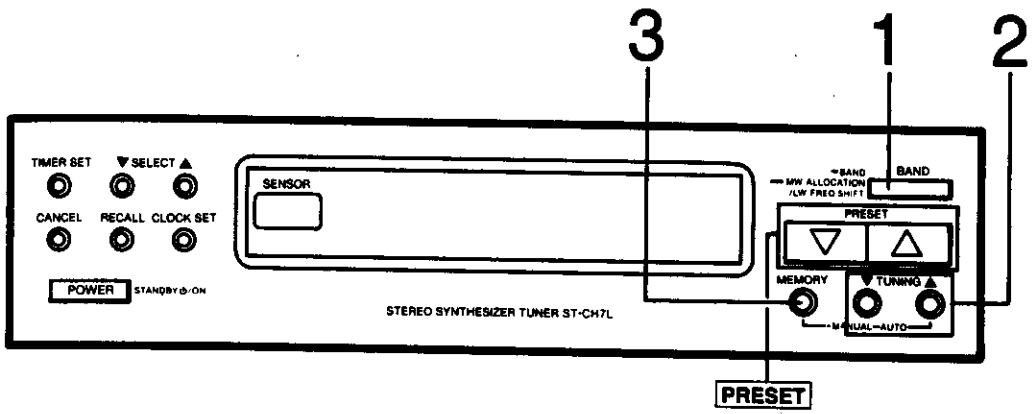
The music select function may sometimes fail to operate correctly in the following cases.

•When the interval between tunes (the non-recorded part) is less than three seconds.
•When playing a tape that was recorded using fade-in or fade-out.
•When there is a particularly low level passage or silent passage in the middle of a tune.

Memory Presettings

The indication AM used here includes both MW and LW.

When broadcast frequencies have been preset to the memory, any of those broadcast frequencies can thereafter be easily selected by simply pressing one of the preset-tuning buttons. There are two methods for presetting broadcast frequencies in the memory: the automatic method (see below) and the manual method (refer to page 32); select whichever method you prefer.
If a new broadcast station is preset into a channel, the broadcast station which was previously entered in that channel will be automatically erased.



Automatic memory presetting

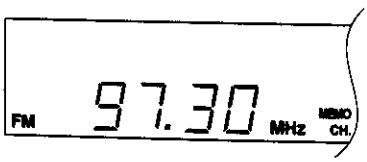
When this method is used, the frequencies of the selected broadcast stations are automatically preset (in sequence to higher frequencies) into the memory: "channels" 1 to 28 are available for the presetting of FM stations, "channels" 21 to 28 are available for MW stations, and "channels" 27 to 28 are available for LW stations. When a presetting is made to a channel that has already been preset, the prior presetting will be erased.

Carry out the steps 1 and 2 of "Standard Operations" on page 20.

1 Select the desired band ("FM", "MW" or "LW").

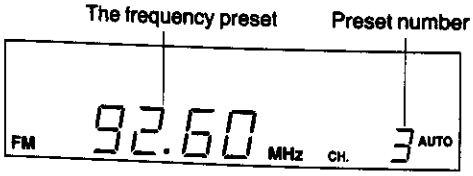
2 Set to the frequency from which you want to start automatic memory presetting.
(Refer to "Frequency tuning" at the right.)

3 Press and hold the memory button; release it when the display frequency begins to change.
(The memory indicator will flash, and the automatic memory presetting is activated.)



■ To confirm the stations which are preset to each channel

Press one of the preset-tuning buttons.



Notes:
- For automatic presetting in areas where there are fewer than 28 FM stations, the remaining channels (through channel 28) will be left unoccupied. The unoccupied channels can be filled by using manual memory presettings.
- For AM broadcasts with extremely strong signal transmissions, the frequency memorized may be slightly different than the correct frequency. If this occurs, make a manual presetting.

■ Frequency tuning ("TUNING" buttons)

▼ TUNING Press to change the frequency downward.

▲ TUNING Press to change the frequency upward.

1. Press and hold one of the tuning buttons, then release the button when the displayed frequency begins to change.

2. When the displayed frequency approaches the desired frequency, press one of the tuning buttons momentarily. (The displayed frequency will stop changing.)
   Note:
   The changing of the displayed frequency will be automatically stopped (by the automatic tuning function) if a broadcast station frequency is located during the tuning process. If the frequency at which it stops is not the desired frequency, repeat step 1 above.

3. After stopping at step 2, tap one of the tuning buttons a few times until the desired frequency is reached.

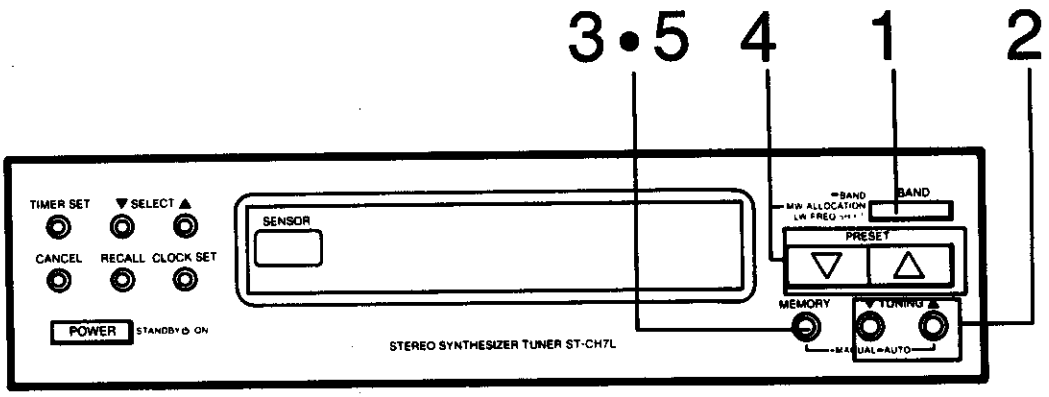
■ MW allocation

When the band select button is pressed for about 3 seconds, the MW frequency step will change to 10 kHz per step. (This unit is set to 9 kHz before shipment.) In order to return to the original frequency indication, press this button for about 3 seconds again.

■ LW freq shift

When the band select button is pressed for about 3 seconds during reception of an LW broadcast, the LW frequency will decrease by 2 kHz. In order to return to the original frequency indication, press this button for about 3 seconds again.

Memory Presettings (continued)



Manual memory presetting

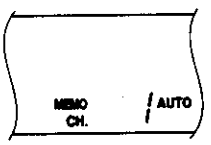
Stations can be freely preset to any desired channel.
A maximum of 28 broadcast stations can be memorized.

Carry out the steps 1 and 2 of "Standard Operations" on page 20.

1 Press the band select button to select the desired band ("FM", "MW" or "LW").

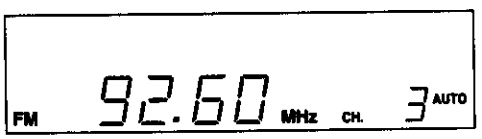
2 Press the appropriate tuning button to tune to the desired broadcast.
(Refer to "Frequency tuning" on page 31.)

3 Press the memory button momentarily.
(The memory indicator will illuminate.)



Note:
If the memory button is pressed continuously, the automatic memory presetting is activated. To stop the automatic memory presetting, press the tuning button.
Then begin again from step 2.

4 Select the desired "channel"
(Refer to "To confirm the stations which are preset to each channel" on page 31.)



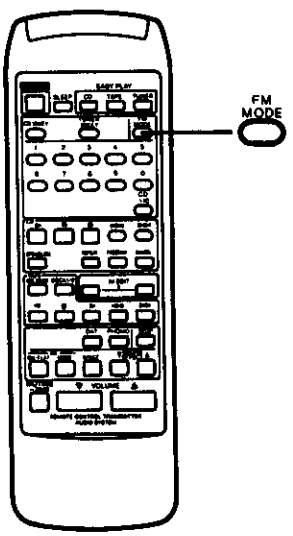
5 Press the memory button momentarily.
(The memory indicator will go out.)

6 Repeat the above procedures to make memory presettings.

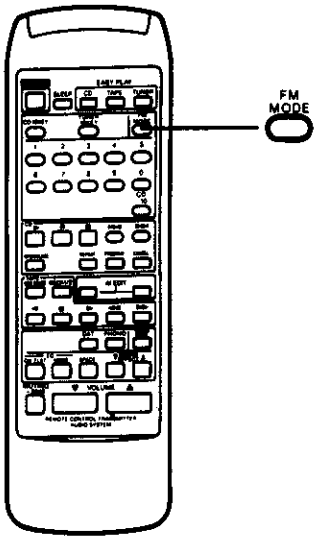
■ FM mode (FM AUTO, MONO) memory

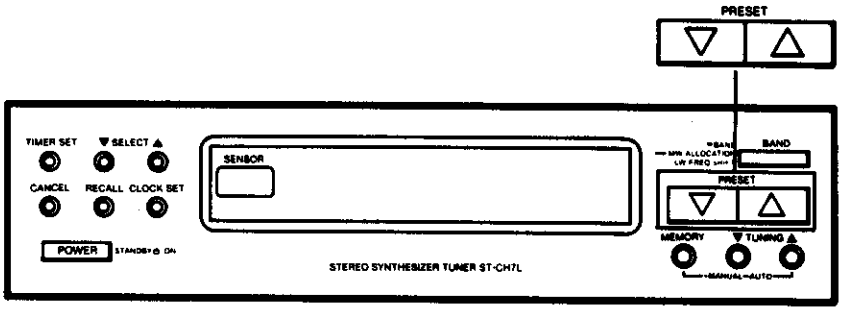
With this unit, it is possible to enter into the memory FM broadcast stations in the monaural mode. This is convenient when entering into the memory an FM broadcast station that is broadcasting FM stereo signals in which there is much noise.

① Follow above steps 1 through 2.
② Press the FM mode button to select "MONO". (The "MONO" FM mode indicator will illuminate.)
③ Follow steps 3 through 5 above.



Listening to Radio Broadcasts





Memory tuner operation

Have you completed the steps of "Automatic memory presetting" on page 31 or "Manual memory presetting" on page 32?

Carry out the steps 1 and 2 of "Standard Operations" on page 20.

Press one of the preset-tuning buttons to select the desired channel.

▽ Press this button to select low-order presets.

△ Press this button to select high-order presets.

■ If noise is excessive in FM broadcasts

FM MODE

Press the FM mode button.

The sound will then be heard as monaural sound and the FM stereo indicator will not illuminate; the "MONO" FM mode indicator will then illuminate instead of the "AUTO" indicator. If the broadcast signal is weak, sounds can be heard more clearly (than in the stereo mode) by pressing the FM mode selector.

■ Back-up memory

The Back-up function maintains the preset memory and the most-recent memory, if the power cord is disconnected. The memory will be maintained for as long as approximately 2 weeks.

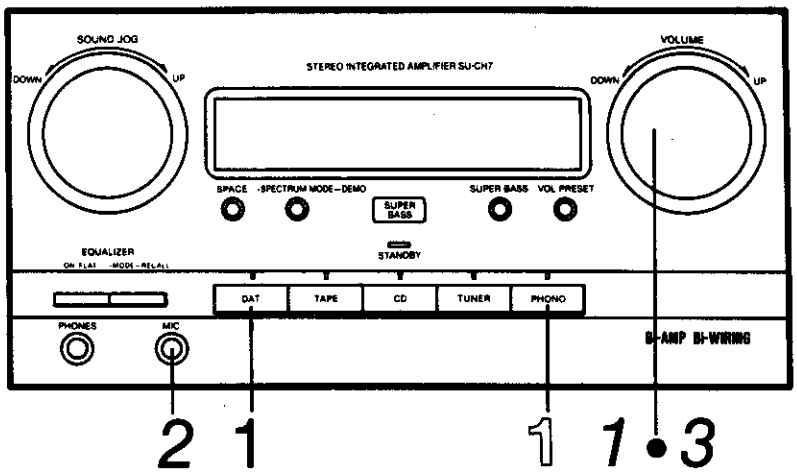
Most-recent moemory:

The most-recent memory system "remembers" the broadcast station last tuned to when the unit was switched to standby mode. That station will be automatically tuned to when the power is switched ON.

If frequency presettings are accidentally erased:

1. Switch ON the power.
2. Make the frequency presettings (on page 31 or 32) once again.

Listening to Other Sources



To listen to DAT

DAT

Carry out the step 1 of "Standard Operations" on page 20.

1 Press the input selector button marked "DAT".

2 Operate the DAT.
See the instruction manual of the DAT.

■ To record on a DAT tape.
After selecting the desired source, follow the above procedures, then start recording.
For details, refer to the DAT instruction manual.

To listen to phono discs

PHONO

Carry out the step 1 of "Standard Operations" on page 20.

1 Press the input selector button marked "PHONO".

2 Operate the turn table system.
See the instruction manual of the turn table system.

•To prevent a low-pitched noise ("hum"), install a turntable at the right side of the system, or separate from the system.

Microphone mixing

1 Turn down the volume.

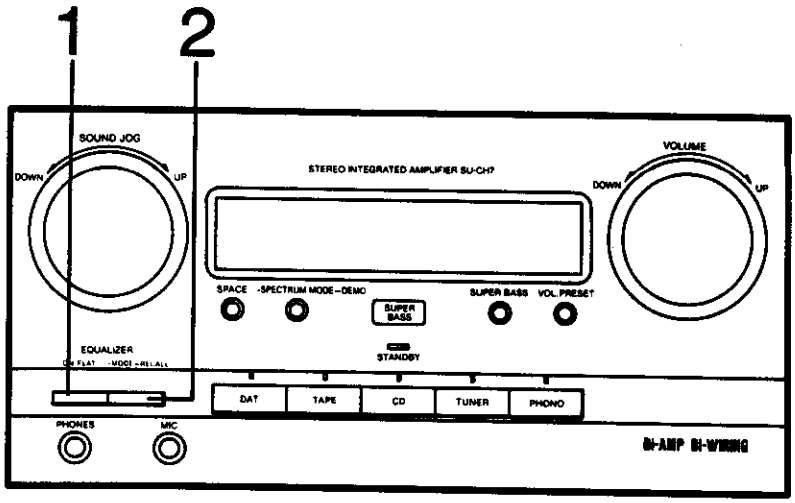
2 Connect a microphone.

3 Play the desired source and adjust the volume level.

If a strange noise (squealing or howling noise) is emitted during mixing, either change the direction of the microphone or turn down the volume.

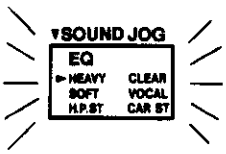
To perform mixing-recording
Put the amplifier in the mic mixing mode, then perform the operation of "Recording". (See page 40.)
Note:
Mixing-recording from deck 1 to deck 2 cannot be performed.

Changing the Tone Quality



Carry out the steps 1, 2 and 3 of "Standard Operation" on page 20.

1 Press the equalization function button to ON.



2 Press the equalization mode-select/recall button to select desired tone quality.

Each time you press this button, the equalization curve will change as follows.

HEAVY→CLEAR→SOFT→VOCAL→H.P.ST→CAR ST

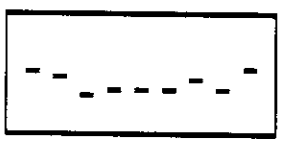
■ When the equalizer effect is not necessary

Press the equalization function button.

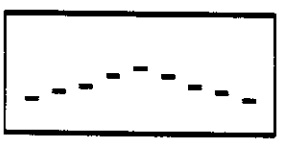
The preset equalization curves

1 HEAVY
This curve can be used to add "punch" to rock and other music.

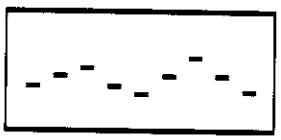
2 CLEAR
This curve can be used to clarify the treble range of jazz, etc.



3 SOFT
This curve can be used to listen to background music, etc. at a low volume level.

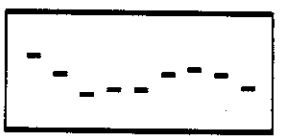


4 VOCAL
This curve can be used to clarify vocal music.

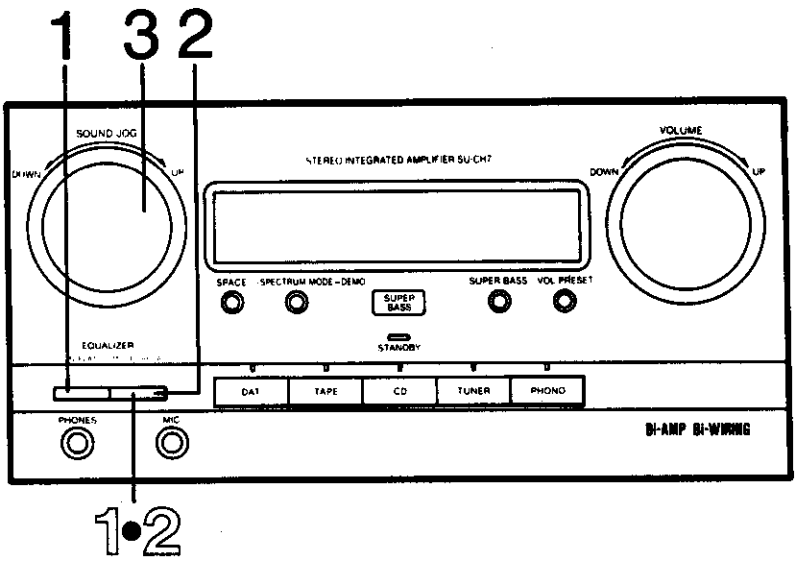


5 H.P.ST
This curve can be used to record a tape for playback using the stereo cassette player (Headphones Stereo).

6 CAR ST
This curve can be used to record a tape for playback using the car audio system (Car Stereo).



Changing the Tone Quality (continued)



To store a desired equalization curves

You can easily create the desired tone quality by using the sound effect level control. The tone qualities you created are automatically stored (up to 6) in the unit's memory.

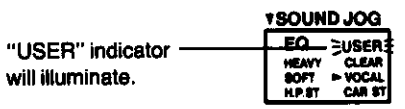
1 Press the equalization function button to ON.

2 Press the equalization mode-select/recall button momentarily to select the desired tone quality.

Each time you press this button, the equalization curve will change as follows.

HEAVY→CLEAR→SOFT→VOCAL→H.P.ST→CAR ST

3 Adjust the equalization effect to create the desired tone quality with the sound effect level control.



To gain this effect, turn clockwise.

Once adjustment has been done, the equalization curves will be automatically stored as the "USER" curve in the unit's memory.

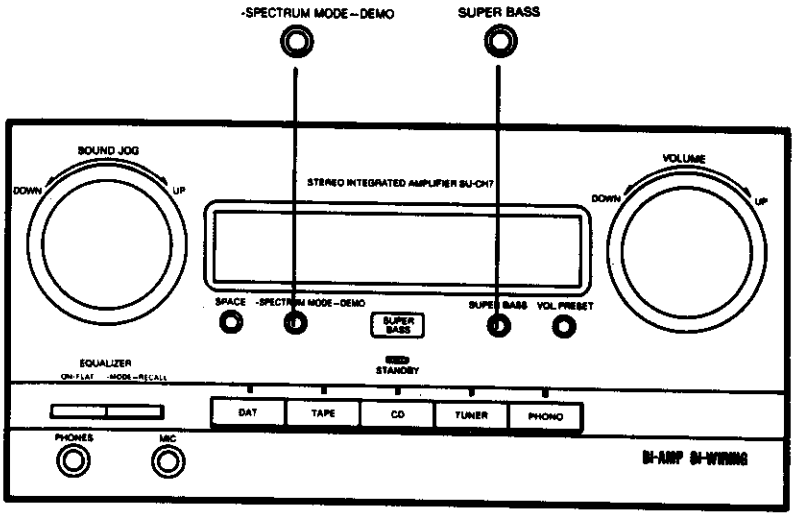
To retrieve equalization curves from the memory

1 Press the equalizer mode select/recall button momentarily to select the mode in which you have programmed previously.

2 Press and hold the equalizer mode select/recall button to illuminate the user indicator and to change to your desired tone.

Note:

- To confirm the equalization curve, press the equalization function button twice.



To listen with augmented bass (SUPER BASS)

SUPER BASS

Press the super bass button.

The super bass indicator will illuminate.

To cancel the super bass mode, press the super bass button once again.

To change the equalization curve and ambience enhancement continuously

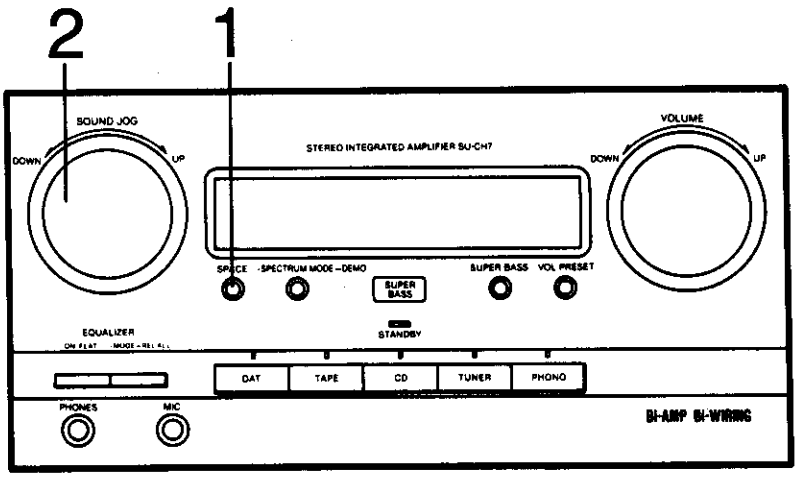
DEMO

Press and hold the spectrum mode select/ demonstration button.

The programmed setting for the tone quality and the ambience enhancement effect will be canceled and return to their original settings.

To cancel, press this button again.

Producing a "Live" Performance Sound

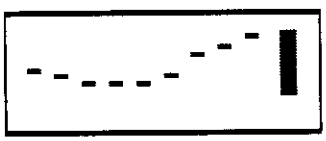


Adjust the effect while listening to the sound.

1 Press the ambience enhancement button (SPACE) to ON.

2 Adjust the ambience enhancement effect with the sound effect level control.

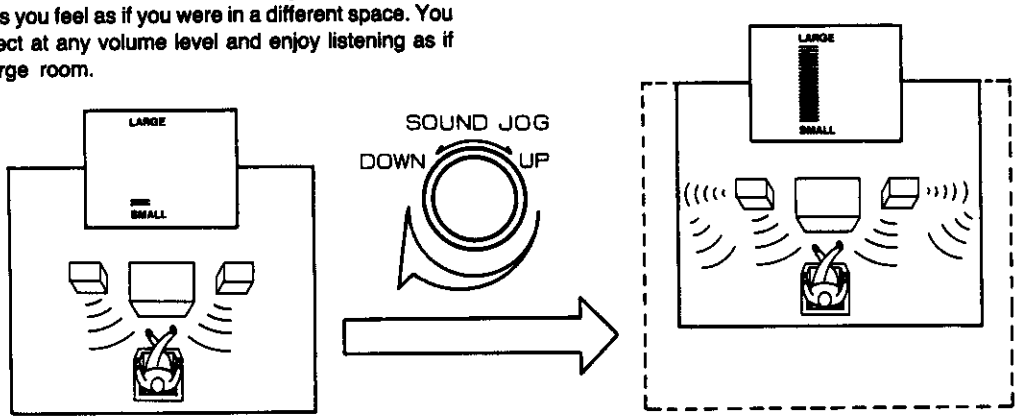
To gain this effect, turn clockwise.

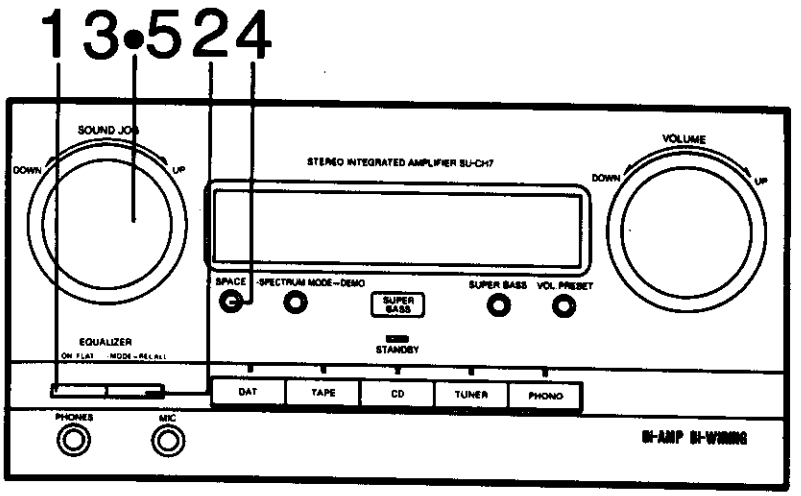


(Max. position of ambience enhancement effect)

The ambience enhancement effect

This is effective even at low sound levels.
Adjusting the ambience enhancement effect using the sound effect level control makes you feel as if you were in a different space. You can enjoy this effect at any volume level and enjoy listening as if you were in a large room.

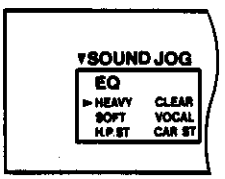




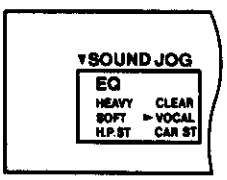
To enjoy ambience enhancement with equalization effect

You can combine your desired tone quality with ambience enhancement to get more comfortable sound quality.

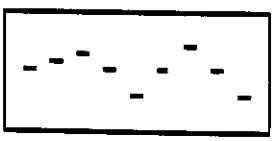
1 Press the equalization function button to ON.



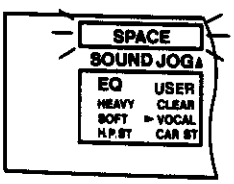
2 Press the equalization mode-select/recall button momentarily to select the desired tone quality.



3 Adjust the equalization effect with the sound effect level control.

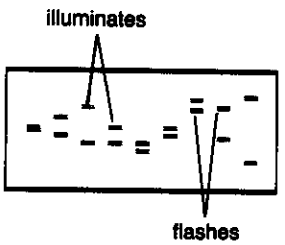


4 Press the ambience enhancement button to ON.



5 Adjust the ambience enhancement effect with the sound effect level control.

The flashing curve (In the example below, an ambience enhancement curve) is adjustable.

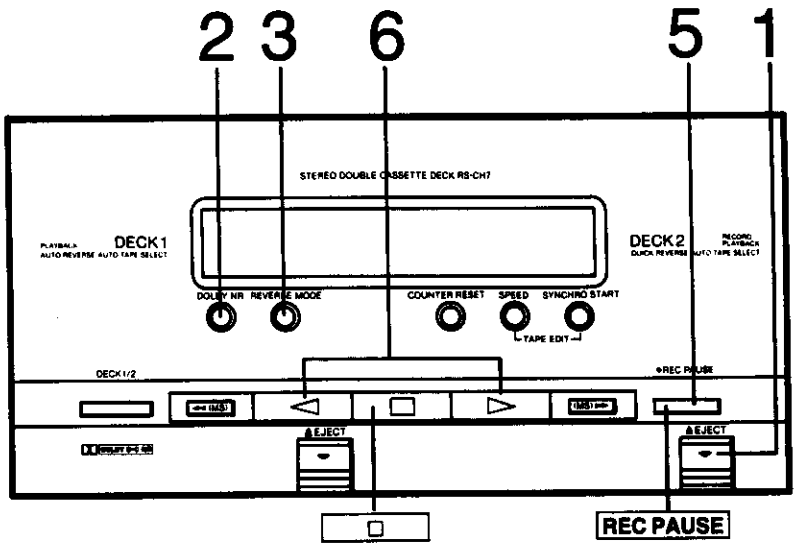


■ To change the tone quality after setting as shown above

Press the equalization function button to set "FLAT" and then press again to set "ON". The equalizer curve will flash and the changing of the equalizer level will be possible using the sound effect level control.

Recording (Tape deck 2 only)

You can make a record with your desired tone quality and ambience enhancement effect.



Though you can record a CD by the following procedure, it is recommended that you use the handy CD edit-recording procedure to record a CD. (See pages 42~45.)

When recording from tape to tape, follow the procedure for tape to tape recording (on page 46).

Carry out the step 1 of "Standard Operation" on page 20.

1 Press the eject button, and then insert the cassette to be used for recording into tape deck 2.

(The part of the cassette where the tape is exposed should face downward)

2 When making a Dolby NR recording, press the Dolby noise reduction button to select "B" or "C".

3 Select the reverse mode.

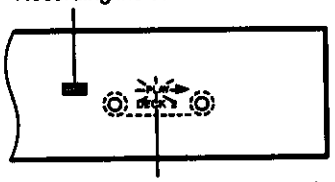
⇄ One side will be recorded, then the tape will automatically stop.

↻/↻↺ Both sides will be recorded (forward side reverse side), then the tape will automatically stop.

4 Press the input selector corresponding to the sound source (compact-disc player, phono disc, etc.) from which you want to make the recording.

5 Press the record/record standby button.

Recording indicator will illuminate



Deck 2 operating indicator will flash.

6 Press the playback button (The recording will begin.), then begin the sound source to be recorded.

▷ When recording on either the forward side or both sides.

◁ When recording only on the reverse side.

Synchro Start function

When you make a recording from a CD, the recording will automatically take place if you press the play button on the CD player. After recording has been done, the cassette deck will create a non-recorded passage of about four seconds, then go into the recording standby state.

■ To briefly interrupt recording

REC PAUSE

Press the record/record standby button.

To resume recording, press the play button corresponding to the direction in which recording is taking place.

■ To stop recording

□

Press the stop button.

Notes:

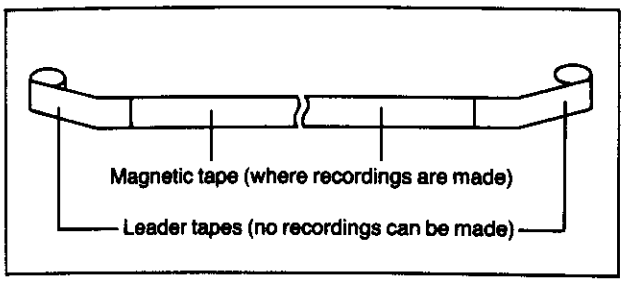
- Only tape deck 2 can used for recording. Tape deck 1 has no recording capability.
- You cannot record on the leader tape, so take up the leader tape in advance.
- The optimum recording level will be set automatically.
- Types of tapes that can be played: normal, chrome, metal.

Synchro start function

When you make a recording from compact discs, the recording will automatically start when you press the play button on the compact disc player. After recording has been completed the cassette deck will create a non-recorded passage of about four seconds, and then go into the recording standby state.

Quick-reverse function (Deck 2)

This is a function by which the unit detects the leader tape (the transparent tape at both ends of the magnetic tape) and then automatically reverses (in about one second) the direction of the tape movement during playback (or recording).



- In order to avoid an operational error at the beginning of the page, this function is not effective until about 15 seconds after playback (or recording) first starts.
- This function does not operate for tapes that do not have leader tapes.
- This function may not function correctly:
  If the leader tapes are colored.
  If there is dirt or dust on the tape.
  If the magnetic part of the tape is thin.
  If a strong light (direct sunlight, a spotlight, etc.) is shining into the cassette holder.
- When the unit is subjected to a strong impact.
- When the quick-reverse function is not activated, the tape's direction of movement will reverse when the tape reaches its end.

To erase a recorded tape (Deck 2)

1. **Press the input selector button on the amplifier marked "TAPE".**
2. **Insert the recorded tape into the deck 2.**
3. **Press the Dolby noise reduction button to go off the Dolby noise reduction indicator.**
4. **Select the desired reverse mode.**
5. **Press the record/record standby button.**
6. **Press the playback button corresponding to the side to be erased.**

When a new recording is made on a pre recorded tape, the previous recording will be automatically erased.

Dolby NR system

This is a system intended to reduce hiss noise in the high frequency range. It raises the level of the high frequency components during recording, and lowers it by the same amount during playback.

B type: Noise is reduced to about 1/3. Use this type when playing a tape in the Dolby NR mode.
C type: Noise is reduced to about 1/10. Use this type when recording and playing back a high quality, high dynamic range source such as a CD or FM broadcast.

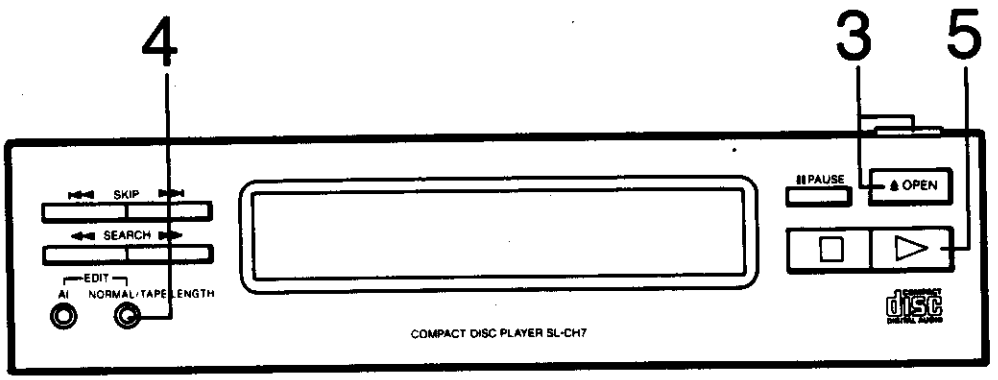
Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.

"DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

Edit-Recording Compact Discs

You can not edit more than 21 tracks.
You can make a record with your desired tone quality and ambience enhancement effect.

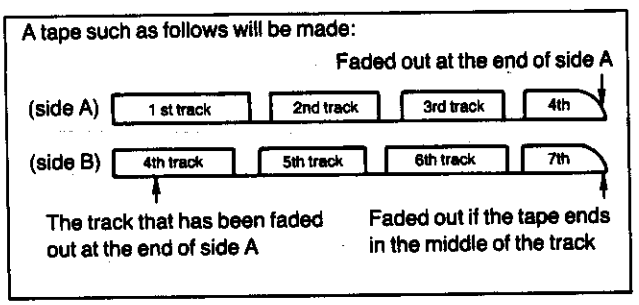
During edit-recording, the Edit mode has priority hence operations that can be performed are power switch-on/switch-off and level control adjustments.



Sequencial editing (NORMAL)

During recording, silent gaps of approximately 4 seconds are inserted between tracks automatically (auto space function).

The unit makes a tape with no blank at the end of side A.


A tape such as follows will be made:
Faded out at the end of side A
(side A)
1 st track
2nd track
3rd track
4th
(side B)
4th track
5th track
6th track
7th
The track that has been faded out at the end of side A
Faded out if the tape ends in the middle of the track

1 Carry out the steps 1 and 2 of "Recording" on page 40.

Recording will take place automatically from the forward side to the reverse side of the tape, so insert the tape with the side from which you intend to record first facing toward you, then enter the reverse mode "⇄".

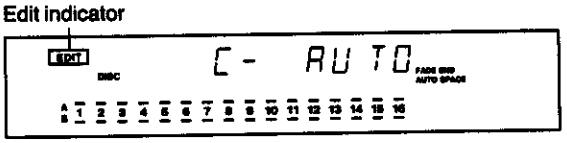
2 Press the input selector button on the amplifier marked "CD".

3 Load a disc.

4 Press the edit mode button once to indicate "C-AUTO".

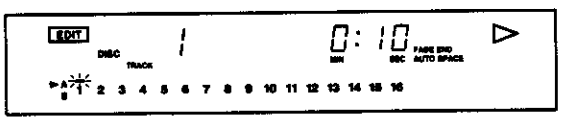
Cassette deck will take up the leader tape automatically and the edit indicator will illuminate.

Edit indicator



5 Press the play button.

The ATLS function (See page 45.) will operate to adjust the recording level, and then recording will start.



When edit-recording has finished, the cassette deck automatically creates a non-recorded passage of about four seconds in length, and then enters the recording standby mode.

■ When the edit indicator and CD indicator on the cassette deck does not illuminate

The cassette deck is not ready to record because the tape is not loaded or the safety tab is broken, for example. Press the stop button on the CD player and repeat the procedure from step 1.

■ To stop edit recording

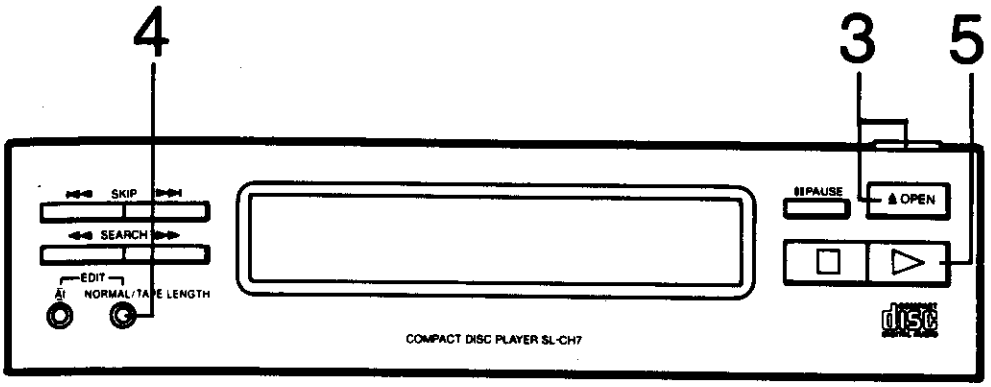
Press the stop button on the cassette deck.
The CD player will automatically stop.

■ To record another disc on the tape left

When recording of the first disc has finished, the link indicator illuminates and the CD player's time display indicates the amount of blank tape left over on side "B". The tracks from a second disc can be recorded as indicated on page 45.

After finishing recording the first disc using the sequencial editing, tracks to be recorded on the tape leftover will not be displayed, but it is possible to record another disc.

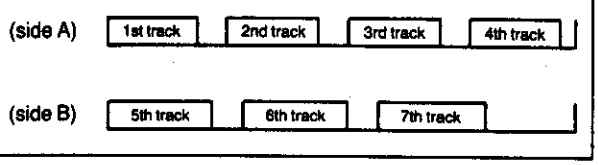
If another disc is not going to be recorded, press the stop button on the CD player.



Editing with consideration to the specified tape length (TAPE LENGTH)

Like the "Sequencial editing" function on the previous page, this function allows for automatic recording of CD songs in sequence, on a tape which you specify its length.
However, at the end of each side of the tape, instead of fading out the song, the tape is left blank unless the next entire song in the sequence will fit.

A tape such as follows will be made:

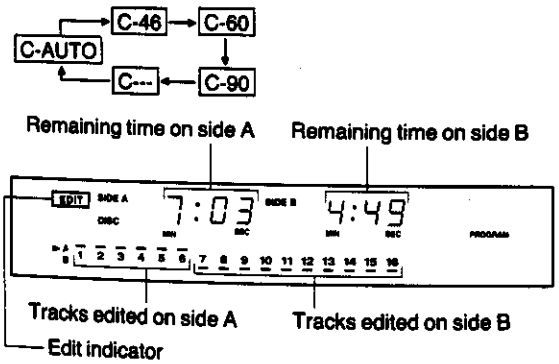


1 Carry out the steps 1 and 2 of "Recording" on page 40.
Recording will take place automatically from the forward side to the reverse side of the tape, so insert the tape with the side from which you intend to record first facing toward you, then enter the reverse mode "⇄".

2 Press the input selector button on the amplifier marked "CD".

3 Load a disc.

4 Press the edit mode button to select the tape length.
Each time the button is pressed the tape length indicator changes as follows.



•Cassette deck will take up the leader tape automatically and the edit indicator will illuminate.

■ To specify a tape length other than C-46 60, 90

Press the edit mode button 5 times to select "C- --". Then press the numeric button on the remote control transmitter to specify the total recording time of the tape. From the main unit, keep pressing one of the skip buttons until the display shows the desired tape length.
For example:
If a 52 minute tape is to be used, from the remote control transmitter, after pressing the CD 10 KEY, first press 5, and then 2. From the main unit, keep pressing (or press or hold) one of the skip buttons (▶▶|, |◀◀) until the display shows "C-52".

5 Press the play button.
The ATLS function (See page 45) will operate to adjust the recording level and then recording will start.

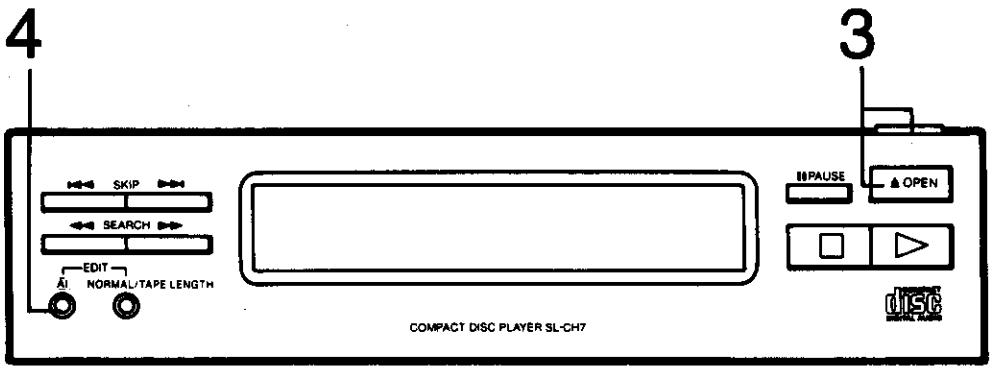
When edit-recording has finished, the cassette deck automatically creates a non-recorded passage of about four seconds in length, and then enters the recording standby mode.

•When you want to record programmed tracks, first program tracks in memory using the program play procedure. Then press the edit mode button.

■ To record another disc on the tape left

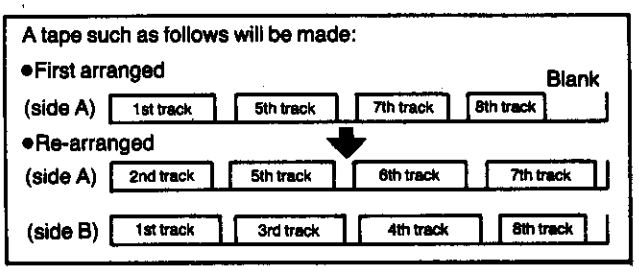
(See page 45.)

Edit-Recording Compact Discs (continued)



AI edit recording (AI)

The AI (Artificial Intelligence) function will rearrange the CD song order to minimize leftover tape at the end of side "A" of your cassette.
The tape is advanced and then rewound in order to measure its length. This is done so that the CD player can estimate which song order best fits on side "A". After recording has been completed on side "A", the CD player accurately determines the amount of leftover blank tape. If the amount of blank tape is great, the tape deck rewinds the tape and the CD player selects a different song order that best fits on side "A".

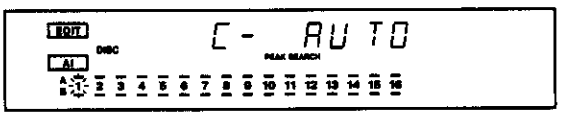


1 Carry out the step 1 and 2 of "Recording" on page 40.
Recording will take place automatically from the forward side to the reverse side of the tape, so insert the tape with the side from which you intend to record first facing toward you, then enter the reverse mode "⇄".

2 Press the input selector button on the amplifier marked "CD".

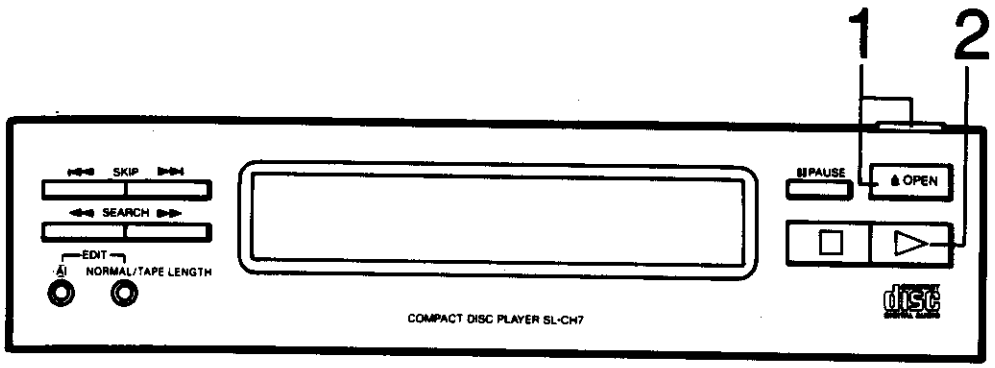
3 Load a disc.

4 Press the AI edit button.
Just pressing this button makes AI edit-recording.
The cassette deck automatically fast-forwards and rewinds the tape to measure the length, then stops at the beginning of the tape.
The ATLS function (see page 45.) will operate to adjust the Sound level, and then recording will start.



•The maximum allowable playing time for editing is 99 minutes. When a track number of 21 (or higher) is specified, the edit function does not work.

■ To record another disc on the tape left
(See page 45.)



To record another disc on the tape left (Auto link)

When recording of the first disc has finished, the link indicator illuminates and tracks of another disc can be recorded.

1 **Switch the disc to another when recording of the first disc has finished.**
Tracks to be recorded on the tape left will be automatically calculated and displayed.

2 **Press the play button to start recording.**
After the recording level has been automatically adjusted, the recording will start.

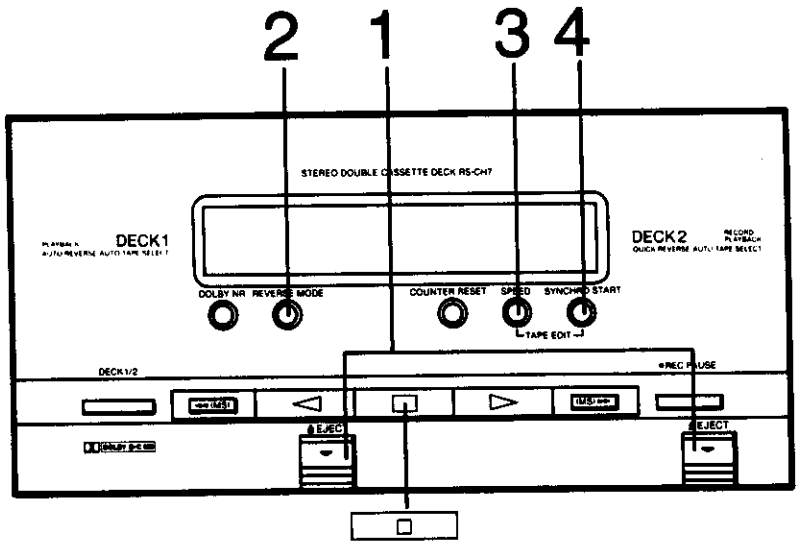
Notes:

- If there is not enough space at the end of the tape, it may not be able to record on the tape left.
- In case you record more than third discs, follow the above procedures.
- After finishing recording the first disc using the sequencial editing, tracks to be recorded on the tape will not be displayed, but it is possible to record another disc.

ATLS (Automatic Tape Level Setting)

The unit automatically searches for the peak point of the entire disc or the programmed tracks.
When the peak point is found, the peak signal will be sent for about 6 seconds, and the recording level will be set automatically at the cassette deck. (During this interval, the peak sound will not be output.)

Tape to Tape Recording



To record from deck 1 to deck 2

The recording level of the original (playback) tape, and the noise-reduction effect on the original tape, will be recorded to the new tape just as they were in the original recording.

Carry out the steps 1 and 2 of "Recording" on page 40.

1 Insert the blank tape into deck 2 and the pre-recorded tape into deck 1.

Be sure to load the tape in decks 1 and 2 with the forward side uppermost (so that the "PLAY ▶" indicator light).

2 Select the desired reverse mode.

⇄ : Single sided recording (forward side only)
↻ : Two-sided recording
(forward side reverse side)
In case the length of a tape set in the deck 2 is longer than a tape in the deck 1 tne deck 1 repeats the playback until the deck 2 complete the two-sided recording. (up to eight times)
↻↻ : Two sided recording
(forward side reverse side)

3 Press the edit speed button to select the recording speed "×1" or "×2".

×1: Normal speed
×2: High speed

4 Press the synchro-start button to start edit-recording.

The tape edit indicator on the cassette deck will illuminate.

When edit-recording is completed, the cassette deck automatically creates a non-recorded passage of about four second in length, and then enters the recording standby mode.

Note:
Be sure to press the edit speed button to go out of the edit speed indicator after finishing recording.

■ To stop edit-recording

□

Press the stop button.
If the deck 1 operating indicator is lit, press the deck 1/ deck 2 selector to select deck 2 before stop recording.
If you press the stop button while the deck 1 indicator is lit, the cassette deck automatically creates a non-recorded passage of about four seconds in length, and then enters the recording standby state. Pressing the synchro-start button can resume edit-recording.

■ To change the direction of tape travel

1) Press the one of the desired play button.
2) Press the stop button.

■ While edit-recording is taking place

You can press one of the input selector buttons on the amplifier and enjoy listening to another music source, such as a CD.
You can change the settings of the volume and tone controls of the amplifier without affecting the recording.
Note:
Switch off your television set or video equipment when performing edit-recording at high speed (×2). The reason for this is that noise is sometimes picked up and recorded.

Using the Timer

Types of timer operations

■ One-time timer function (ONCE)

This timer function can be used to switch the power ON and to the stand-by condition at a desired day and time (one day only). This is convenient for recording broadcasts while you are away. (Programmed settings are canceled when this timer function is used.)

■ Weekly timer function (WEEKLY)

- Every week on the same day, (one day from Sunday to Saturday)
- Every day (from Sunday to Saturday)
- Every day except Sunday (from Monday to Saturday)
- Every day except Saturday and Sunday (from Monday to Friday)

The power will be switched ON and to the stand-by condition at the desired times (among those choices described above). This feature is convenient for listening to and/or recording the same program at regular intervals.
(The programming remains in effect until canceled.)

■ Sleep timer function (SLEEP)

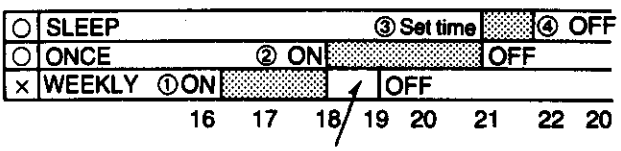
This timer function can be used to switch the power to the stand-by condition at the desired time (within a range of 120 to 1 minutes from the present time). Use this timer to switch the power to the stand-by condition automatically even if you fall asleep while listening.
(Programmed settings are canceled when this timer function is used.)

After approximately one minute after the sleep timer is activated, the tuner display will return to showing the present time.
If the button is pressed in this condition, the time remaining on the sleep timer will be displayed for approximately 10 seconds, and if the button is pressed once more while the time remaining on the sleep timer is being displayed, the sleep timer will be cancelled.

Timer sequence of priority

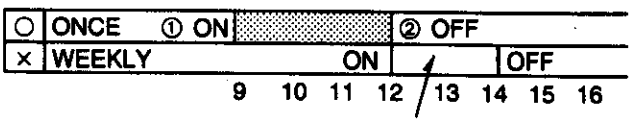
If programmed times overlap, timer operation priority is as follows: "SLEEP". "ONCE" and "WEEKLY" settings.
▒▒▒ : **Timer is functioning.**
▭ : **Timer is not functioning.**

[1] In the following example, the "WEEKLY" setting will be stopped mid-way.



Not activated because the "ONCE" switch-ON time has priority.

[2] In the following example, the "WEEKLY" setting will not be activated.



Not activated because the "ONCE" switch-OFF time has priority.

When the timer programming is set by "ONCE" as shown above, recording or tape playback will not start.

Timer functions

•Timer setting for compact discs
The play starts from the first track.

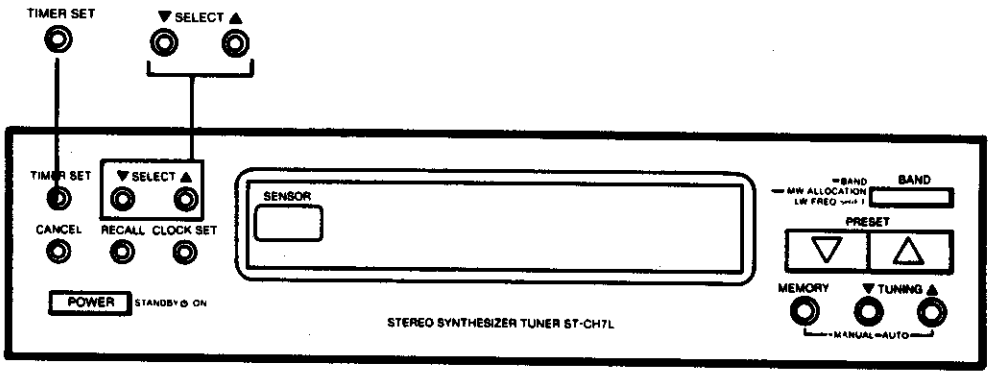
•Timer setting for the cassette deck
Both deck 1 and 2 can be operated. (When cassette tapes are set both in deck 1 and 2, deck 1 will be operated.)

•Timer playing for the radio broadcasts
(Refer to the next page.)

•Timer recording for the radio broadcasts
While timer recording is taking place, the volume level will be automatically muted (-- dB).
The fade-in recording automatically activates with the timer recording.

Using the Timer (continued)

Set the volume level for timer play in advance (See page 51.)



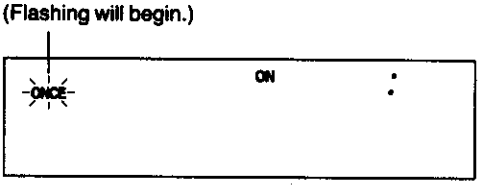
Tuner timer setting (ONCE)

Have you completed "Setting the Time" on page 22 and "Automatic memory presetting" or "Manual memory presetting" on pages 31-32?
If not, please complete these sections before continuing.
The following example will show how to set the "ONCE" timer function for listening to FM channel 3 from 6:30 to until 7:15 on Saturday.

Carry out the step 1 of "Standard Operation" on page 20.

1 Press the timer set button to enter the timer set mode.

(Flashing will begin.)



2 Set the timer function.

① Press the timer select buttons to select "ONCE".

② Press the timer set button.

3 Set the day.

① Press the timer select buttons to select "SAT".

② Press the timer set button.

4 Set the ON time.

① Press the timer select buttons to select "6".

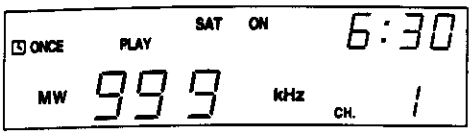
② Press the timer set button.

③ Press the timer select buttons to select "30".

④ Press the timer set button.

5 Select the tuner source.

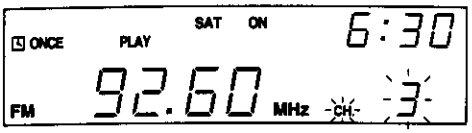
① Press the timer select buttons to select tuner source.
Each time you press one of the timer select button, "CD", "TAPE" and tuner source is alternately displayed.



② Press the timer set button.

6 Select the desired preset channel.

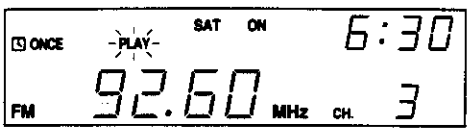
① Press the timer select buttons to select channel "3".



② Press the timer set button.

7 Select "PLAY" or "REC".

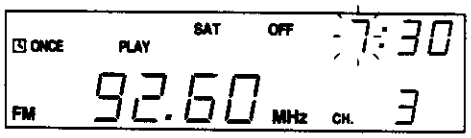
① Press the timer select buttons to select "PLAY".
Each time you press one of the timer select button, "PLAY" and "REC" is alternately displayed.



② Press the timer set button.

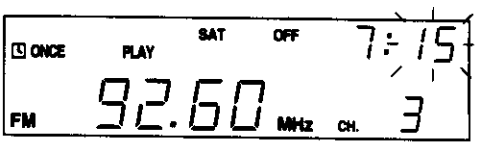
8 Set the OFF time.

① Press the timer select buttons to select "7".



② Press the timer set button.

③ Press the timer select buttons to select "15".



④ Press the timer set button.

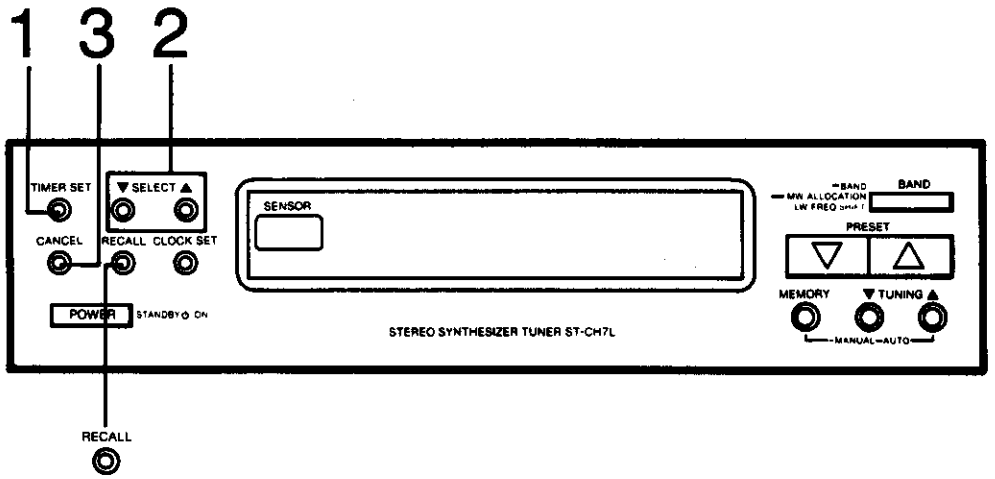
9 Switch the power to standby mode.

Tuner timer setting (WEEKLY)

For the weekly timer function, select "WEEKLY" on step 2, then select from among one of the choices. (Refer to page 47.)

Note:
You can make "ONCE" and " WEEKLY" timer setting respectively.

Using the Timer (continued)



To cancel a timer setting

1 **Press the timer set button.**

2 **Select the "ONCE" or "WEEKLY" timer.**

3 **Press the cancel button.**
The display will return to the clock mode.

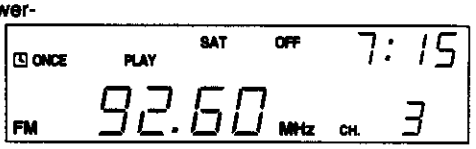
To confirm the timer setting

RECALL

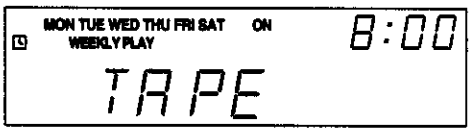
Press the timer setting confirmation button.
Each time you press the timer setting confirmation button, the display will change as follows:

① "ONCE" power-ON time

② "ONCE" power-OFF time



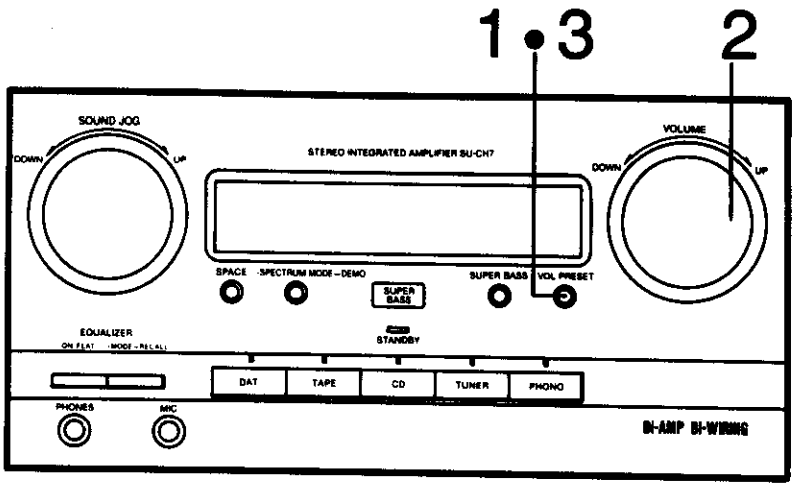
③ "WEEKLY" power-ON time



④ "WEEKLY" power-OFF time

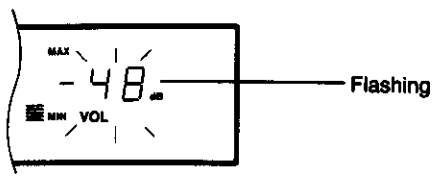
⑤ Present time

Notes:
- Though the power is switched to standby mode, you can confirm the timer setting.
- If you confirm the timer setting while the power is ON, the volume level display on the amplifier will flashes to indicate the volume preset level. (The volume level from the speakers will not change.)



To preset the volume level for timer play

1 **Press the volume preset button to start setting.**



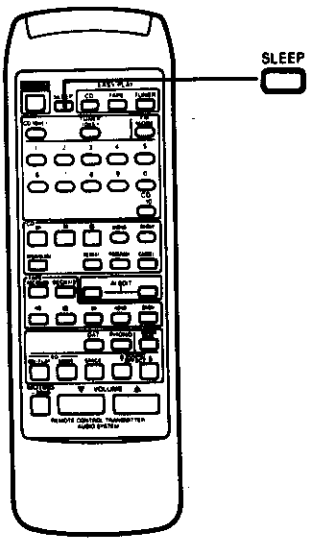
2 **Adjust the volume level using the volume level control.**

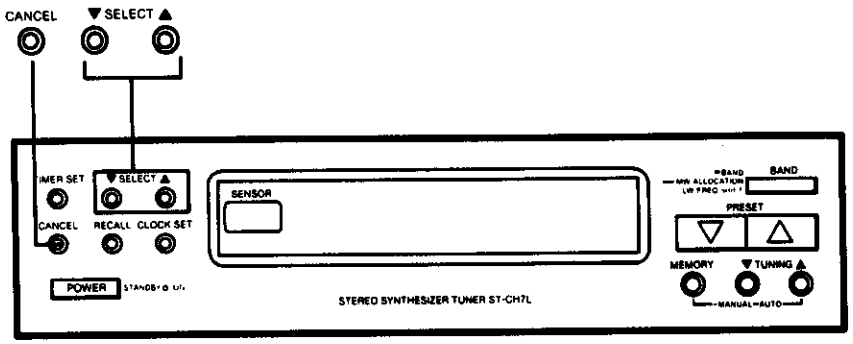
3 **Press the volume preset button to finish setting.**

Note:

- The volume level memorized will activate at timer play, even if the volume setting is changed after the above procedures have been followed.

Using the Timer (continued)

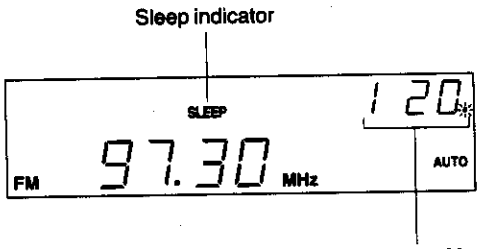




To use the sleep timer

SLEEP

Press the sleep button (on the remote control transmitter) while the source is being played.



The power will be switched OFF after 120 minutes.

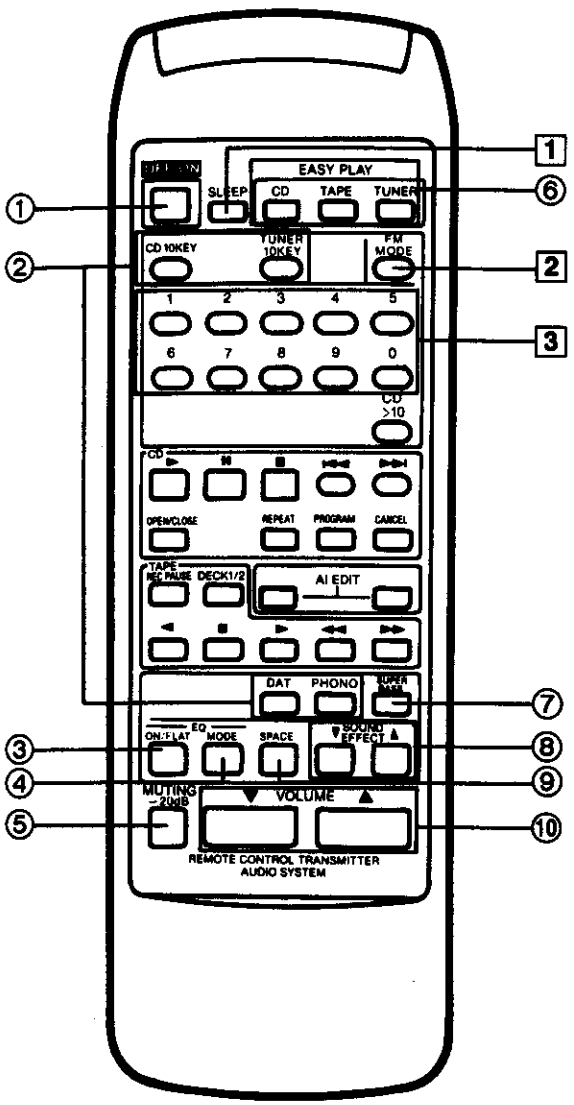
- You can change the sleep time in 1-minute steps by pressing the timer select buttons (within a range of 120 to 1 minute from the present time).
- To cancel the sleep timer setting, press the sleep button once again or press the timer cancel button.

■ To use the sleep timer in conjunction with the timer-play operation

You can go to sleep listening to the radio broadcasts, and wake up the next morning listening to a CD.

1. Make the timer setting for a CD.
2. Set the time with the sleep button.
3. Tune to your favorite station and set the desired volume. (Refer to page 51. "To preset the volume level for timer play.")

Remote-Control Operation



For detailed information concerning operation steps, etc., please refer to the appropriate page for each unit and the respective operation instructions. For this system, you can listen to tapes or compact discs, etc., by operating the remote control transmitter without using the input selectors.

Common operation controls

① **Power switch ([OFF/ON])**
Press this button to switch the unit ON or to the standby condition. Note that there is no need to press this button if the unit's power is ON. (If it is pressed, the unit will be switched to the standby mode.)

② **Function selector buttons (CD 10 KEY, TUNER 10 KEY, DAT, PHONO)**
These buttons are used to change the functions of this remote control transmitter as well as the main unit.

③ **Equalization function button (EQ ON/FLAT)**
Press to select the equalizer effect on or flat.

④ **Equalization mode-select button (EQ MODE)**

⑤ **Muting button (MUTING −20 dB)**
This button is used to temporarily attenuate ("mute") the volume level. After pressing the button the volume level will be reduced by 20 dB.

⑥ **Easy play buttons (EASY PLAY)**
(See page 23.)

⑦ **Super bass button (SUPER BASS)**

⑧ **Sound effect level buttons (▼ SOUND EFFECT ▲)**

⑨ **Ambience enhancement button (SPACE)**

⑩ **Volume level control buttons (▼ VOLUME ▲)**
For adjustment of the volume level.
▲: To increase the volume level.
▼: To decrease the volume level.

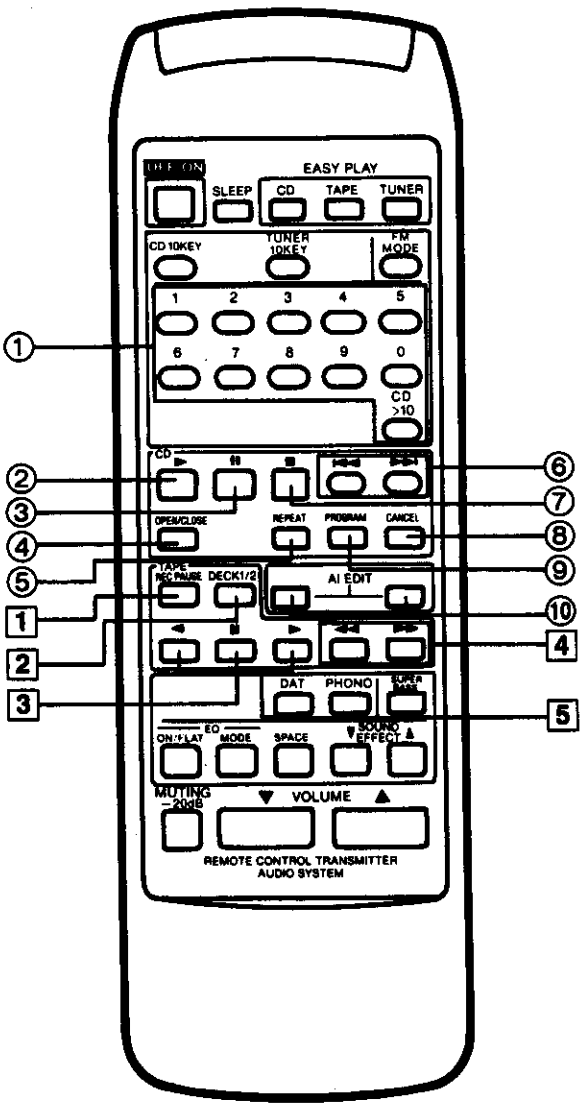
Tuner controls

[1] **Sleep button (SLEEP)**
Press this button to use the sleep timer function.

[2] **FM mode button (FM MODE)**
This button is used to change bad stereo reception to improved monaural sound when listening to an FM broadcast station.

[3] **Preset-tuning buttons (1–0)**
These buttons are used to tune to broadcast stations that have been preset in the unit's memory.
When these buttons are used, be sure to first press the TUNER 10 KEY: from the function selector buttons on the remote control transmitter.

Remote-Control Operation (continued)



Compact disc player controls

① Numeric buttons (1–0, CD >10)
These buttons are used to select the track to be played. When these buttons are used, be sure to first press the CD 10 KEY from the function selector buttons of the remote control transmitter.

② Play button (▶)
Press this button to start disc play.

③ Pause button (❚❚)
To temporarily stop compact disc play.

④ Disc tray open/close button (OPEN/CLOSE)
Press this button to open or close the disc tray.

⑤ Repeat button (REPEAT)
Press this button to perform repeat play. Press once again to cancel this mode.

⑥ Skip buttons (⏮ ⏭)
Press one of these buttons to select the desired track.
⏮: for a prior track
⏭: for a track ahead

⑦ Stop button (■)
Press this button to stop disc play.

⑧ Cancel button (CANCEL)
Press this button to cancel the track selected for program play.

⑨ Program button (PROGRAM)
Press this button to perform program play.

⑩ AI edit buttons (AI EDIT)
These buttons are used to perform AI edit recording. (See page 44.)

Cassette Deck controls

[1] Record/record standby button (REC PAUSE)
Press this button to change to the recording stand-by mode.

[2] Deck 1/Deck 2 selector (DECK 1/2)
Press to select the deck ("DECK 1" or "DECK 2") to be used.

[3] Stop button (■)
Press this button to stop the tape.

[4] Fast-forward/rewind music select button (◀◀, ▶▶)
Press one of these buttons to advance or rewind the tape while the unit is in the stop mode.
Press one of these buttons to select the desired tune while the unit is in the play mode.

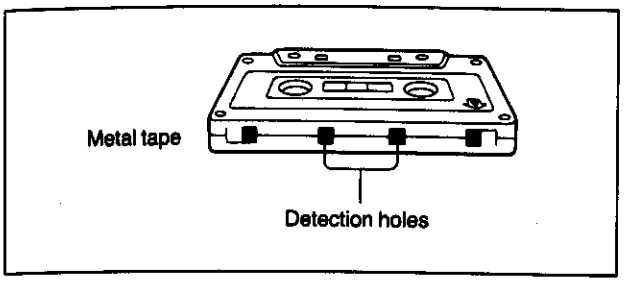
[5] Playback buttons (◀, ▶)
Press this button to start the tape.
▶: "A" side (side facing outward)
◀: "B" side
(There will be an automatic change of the input selector.)

About Cassette Tapes

Selection of cassette tapes

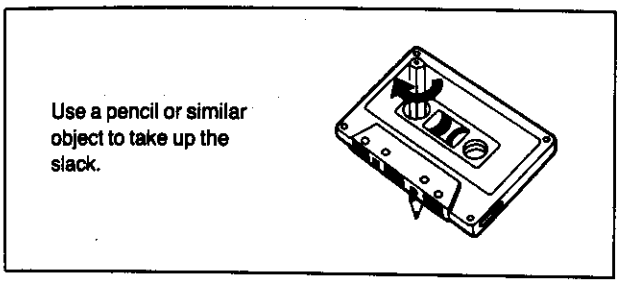
Do not use the following types of tapes in this unit.

- **120-minute (or longer) tapes**
  Because the tape is very thin, it might stretch during use causing unstable tape movement which may result in the tape becoming tangled in the rotating parts of this unit.
- **Fe-Cr tapes (TYPE III)**
  The high frequency range will be emphasized and it will not be possible to obtain a flat frequency response.
- **Metal tape without detection holes in the cassette**
  Recordings will be very distorted. (There is no playback problem, however.)



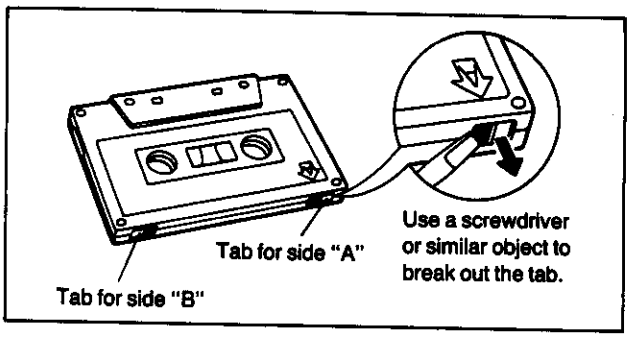
Tape slack

Tape slack may cause the tape to break.



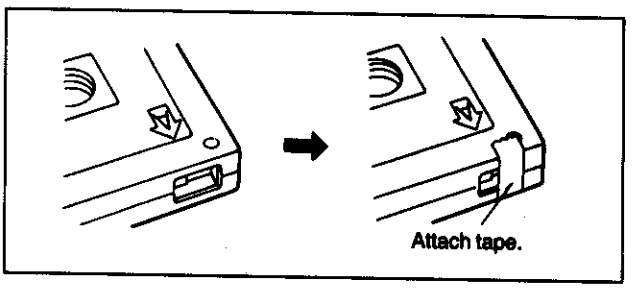
To prevent erasure of recorded sounds

Remove the erase-prevention tabs (thus preventing recording).



■ To re-record on a protected cassette

Cover the slot with adhesive tape.



Avoid tape storage in the following places

Tape can be damaged if it is stored in places such as described below.

- Where the temperature is high (95°F/35°C or higher) or where the humidity is high (80% or higher).
- Where there is a strong magnetic field (near a speaker, on top of a TV, etc.). Recording may become erased.
- In direct sunlight.

About Compact Discs

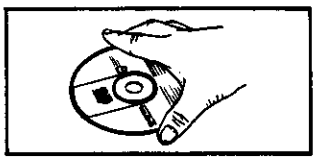
Handling precautions

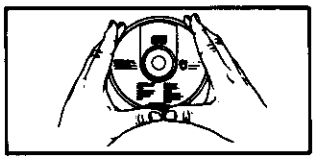
Only compact discs having this mark can be used with this unit.

COMPACT disc DIGITAL AUDIO

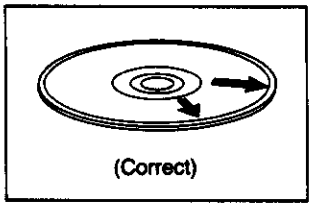
Observe the following precautions to enjoy the same outstanding sonic performance from your Compact Discs for many years.

- Hold compact discs by the edges so the surface is not soiled with fingerprints.

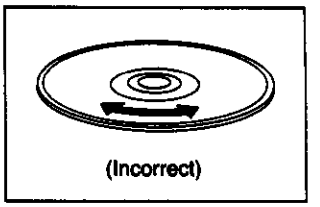




- Be careful not to scratch the surface with fingernails or other sharp objects, particularly when inserting and removing discs from their cases.
- Do not bend the disc.
- Do not use record cleaning sprays or static electricity prevention liquids.
- Do not wipe with benzine, thinner or any other solvent. If the surface is soiled, wipe gently with a soft, damp (water only) cloth.
- When wiping discs, always move the cloth directly outward from the center of the disc, not in a circular motion as with standard phonograph records.



(Correct)



(Incorrect)

(In compact discs, circular scratches along a line of pits are more likely to cause errors than straight scratches across many lines of pits.)

- If the disc is brought from a cold environment into a warm room, moisture may form on the disc. Wipe this off with a soft, dry, lint-free cloth before using the disc.
- Do not dry discs with a hair dryer.
- Do not write on the label side with a ball-point pen, hard pencil or other writing utensil.
- Handle compact discs with care. Fingerprints, dirt and scratches can cause skipping and distortion.

Storage precautions

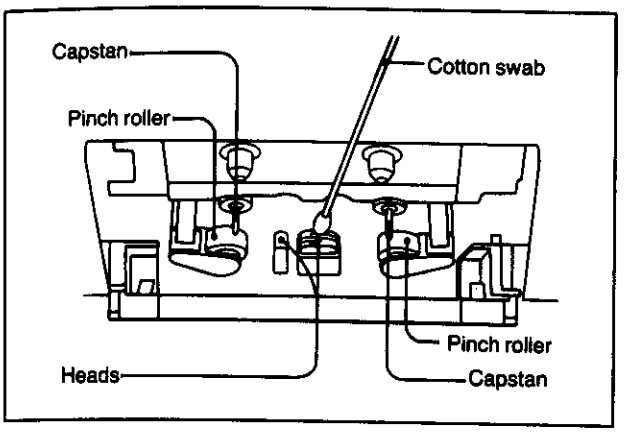
- Be sure to store discs in their cases to protect them from dust, scratches and warping.
- Do not place or store discs in the following places:
  1) Locations exposed to direct sunlight.
  2) Humid or dusty locations.
  3) Locations directly exposed to a heat outlet or heating appliance.
  4) In the glove compartment or rear ledge of an automobile.

Maintenance

Head care

To assure good sound quality for recording and playback, be sure to clean the heads after approximately every 10 hours of use.

1. Switch the power of this unit to standby mode.
2. Press the eject button to open the cassette holder.
3. Clean the heads, pinch roller and the capstan shaft of each deck with a cotton swab (or with a soft, lint-free cloth) slightly moistened with alcohol.
   Do not use any solution other than alcohol for head cleaning.



Head demagnetization

In order to maintain good sound quality during recording and playback, it is recommended that the heads should be demagnetized if distortion or poor sound quality persist after cleaning the heads.

If the heads become magnetized, they could create noise in recordings, loss of high-frequency response, or erasure of valuable recordings. Several types of head demagnetizers are available and may be purchased at local electronics supply stores. Follow the instructions that are supplied with the device.

- Do not bring any type of metal objects or tools such as magnetic screwdrivers in contact with the head assembly.

Maintenance of external surfaces

To clean this unit, use a soft, dry cloth.

For very dirty surfaces, dip a soft cloth in a weak soap-and-water solution and wring well. After cleaning, wipe with a soft, dry cloth.

Never use alcohol, paint thinner, benzine, or a chemically treated cloth to clean this unit.

Such chemicals may damage the unit's finish.

Troubleshooting Guide

Before requesting service for this unit, check the chart below for a possible cause of the problem you are experiencing. Some simple checks or a minor adjustment on your part may eliminate the problem and restore proper operation.
If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem, refer to the directory of Authorized Service Centers (enclosed with this unit) to locate a convenient service center, or consult your dealer for instructions.

Problem	Probable cause(s)	Suggested remedy
Problems common to all units		
The amplifier is not turned on when the power "STANDBY ⏻/ON" switch is pressed.	The power switch on the back of the amplifier is switched OFF.	•Press the power switch on the back of the amplifier.
No sound is emitted when the power is switched ON.	"--" appears on the volume level display.	•Adjust the volume level with the VOLUME control on the amplifier.
The location of the various musical instruments is not well defined.	Reverse the ⊕ and ⊖ connections to one of the speakers.	•Connect the speaker cable correctly.
The left and right sounds are reversed.	Reverse the left and right connections to the speaker.	•Connect the speaker cable correctly.
A low frequency hum is heard when a source is being played.	The power cord or a fluorescent light is located near a connecting cord.	•Keep electrical appliances well away from the connecting cords.
Sound is emitted from only one speaker.	One of the wires of the speaker cord is disconnected.	•Connect the speaker cable correctly.
No sound is emitted when a source is being played.	The ⊕ and ⊖ wires of the speaker cable are shorted.	•Switch off the system, re-connect the speaker cable so that it is not shorted, then switch the power ON again.
While listening to FM broadcasts		
A "rushing" noise which is not heard during a monaural broadcast is heard during a stereo broadcast.	Noise is more likely to appear on a stereo signal than on a monaural signal.	•If an indoor antenna is being used, change to an outdoor antenna. •If a special outdoor antenna is being used, try changing the installation location, height, and orientation. •Try switching off the television, video deck. •Press the FM mode button on the remote control transmitter to change the reception from stereo to monaural mode.
Much noise is heard during a stereo broadcast, and occasionally the sound from the program disappears.	•The installation location and orientation of the antenna are unsuitable. •The transmitting station is a long distance away.	
The stereo indicator of the tuner flickers and does not light completely.		
The sound during a stereo broadcast is highly distorted.	There is a building or mountain nearby. [Distortion is caused by interference between the signal from the transmitting station (direct wave) and the signal reflected of the building or mountain (reflected wave).]	
While listening to LW/MW broadcasts		
An unusual beat sound is heard.	The system is being used at the same time as a television set.	Switch OFF the television set, or use the system farther away from it.
A low frequency hum is heard.	The antenna wire is near the power cord.	Separate the antenna wire from the power cord.
When there is a television set nearby		
The picture disappears or stripes can be seen.	The location and orientation of the antenna are incorrect.	•If an indoor antenna is being used, change to an outdoor antenna. •Separate the television set from the system.
	The wiring at the back of the system is unsuitable.	•Separate the antenna wire of the television set from the system.

Problem	Probable cause(s)	Suggested remedy
While using the tape decks		
Sound is low, intermittent, of poor quality, noisy, scratchy, or unsteady.	Heads are dirty.	Clean the heads.
	The Dolby NR switch is set in the wrong position.	Set it to match the recording condition.
The deck does not enter the recording mode.	The erase-prevention tabs have been removed.	Attach tape to cover the space left by removal of the erase-prevention tabs.
While listening to a compact disc		
The tray does not close when a disc is loaded and the OPEN/CLOSE button pressed.	The disc is not sitting correctly in the disc tray.	Re-insert the tray.
The total number of tracks and total time are not displayed when a disc is loaded. **The disc does not start being played when the PLAY button is pressed.**	The disc is loaded upside down.	Re-load the disc.
	The disc is dirty.	Wipe the disc with a soft cloth.
	The disc is scratched.	Replace the disc with a new one.
	The disc is badly warped.	
	The disc used is a non-standard one.	Replace the disc with a different one.
	There is condensation inside the CD player.	Switch ON the power, then wait for 20 to 30 minutes before using it.
A certain part of the disc cannot be played.	The disc is dirty.	Clean the disc with a soft cloth.
	The disc is scratched.	Skip the scratched part of the disc (skip play).
While using the remote controller		
The system cannot be operated with the remote controller.	The batteries are inserted in the reverse polarity.	Re-insert the batteries in the correct polarity.
	The dry batteries are worn.	Replace the batteries with new ones.

About moisture (for SL-CH7)

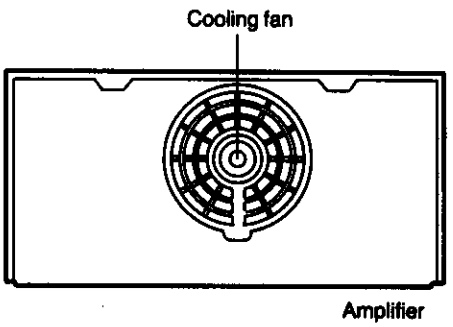
Moisture may form on the lens in the following cases...

- Immediately after a heater has been turned on.
- In a steamy or very humid room.
- When the unit is suddenly moved from a cold environment to a warm one.

If moisture forms inside this unit, it may not operate properly. To correct this problem, turn on the power and wait about one hour for the moisture to evaporate.

About cooling fan on the amplifier rear panel

The cooling fan alternately rotates and stops in order to remove heat from the amplifier. (Do not block off the outlet of the cooling fan.)



Technical Specifications

(DIN 45 500)

LW/MW/FM Stereo Tuner

■ FM TUNER SECTION

Frequency range 87.50~108.00 MHz (0.05 MHz step)
Sensitivity 1.5 µV (IHF, usable)
S/N 30 dB 1.5 µV (75Ω)
S/N 26 dB 1.3 µV (75Ω)
S/N 20 dB 1.2 µV (75Ω)
IHF 46 dB stereo quieting sensitivity 28 µV (75Ω)
Total harmonic distortion
MONO 0.2%
STEREO 0.3%
S/N
MONO 60 dB (74 dB, IHF)
STEREO 58 dB (70 dB, IHF)
Frequency response 20 Hz~15 kHz, +0.5 dB~−1.5 dB
Alternate channel selectivity ±400 kHz 50 dB
Stereo separation 1 kHz 40 dB
10 kHz 30 dB
Channel balance (250 Hz~6,300 Hz) ±1.5 dB
Limiting point 1.2 µV
Bandwidth
IF amplifier 180 kHz
FM demodulator 1000 kHz
Antenna terminal 75Ω (unbalanced)

■ LW/MW TUNER SECTION

Frequency range
MW (For Australia) 522~1611 kHz (9 kHz step)
530~1620 kHz (10 kHz step)
(For Saudi Arabia and others)
531~1602 kHz (9 kHz step)
530~1600 kHz (10 kHz step)
LW (For Australia) 144~288 kHz (9 kHz step)
146~290 kHz (+2 kHz shift)
(For Saudi Arabia and others)
153~279 kHz (9 kHz step)
155~281 kHz (+2 kHz shift)
Sensitivity (S/N 20 dB)
MW 20 µV, 330 µV/m
LW 50 µV
Selectivity (±9 kHz)
MW (at 999 kHz) 50 dB
LW (at 216 kHz) 50 dB

■ TIMER SECTION

Clock Quartz-lock type
24-hour indication
Functions 24-hour programmable; weekly (1 time)
once only (1 time)
sleep (1~120 min., 1-min. intervals)
Setting intervals 1 minute~23 hours, 59 minutes (at 1 min. intervals)

■ GENERAL

Power consumption 8 W
Dimensions (W×H×D) 215×55×295 mm (8 15/32"×2 5/32"×11 5/8")
Weight 1.4 kg (3.0 lb.)

Stereo Integrated Amplifier

■ MAIN AMP. SECTION

Power output DIN 1 kHz THD 1% 6Ω 2×25 W
10 kHz THD 1% 8Ω 2×5 W
both channel driven at 127/240 V
Total harmonic distortion
half power at 1 kHz: Low Amp 0.09% (6Ω)
Headphones output level/impedance 300 mV/330Ω

■ PRE AMP. SECTION

Input sensitivity/impedance
PHONO 3 mV/47 kΩ
MIC 0.7 mV/10 kΩ
DAT 250 mV/27 kΩ
S/N (rated power, 6Ω): Low Amp
PHONO 70 dB (IHF, A 75 dB)
DAT, CD, TAPE 84 dB (IHF, A 85 dB)
Graphic equalizer control 80 Hz, 250 Hz, 1 kHz, 4 kHz, 12.5 kHz
Muting −20 dB
Super bass 55 Hz, +4 dB
Output voltage/impedance
DAT REC OUT 150 mV

■ GENERAL

Power consumption 250 W
Power supply
For Australia AC 50/60 Hz, 230~240 V
For others AC 50/60 Hz, 110~127 V, 220~240 V
Dimensions (W×H×D) 215×110×303 mm (8 15/32"×4 11/32"×11 15/16")
Weight 4.3 kg (9.5 lb.)

Compact Disk Player

■ AUDIO

Frequency response 2 Hz~20 kHz (±1 dB)
Wow and flutter Below measurable limit

■ PICKUP

Wavelength 780 nm

■ GENERAL

Power consumption 17 W
Dimensions (W×H×D) 215×55×295 mm (8 15/32"×2 5/32"×11 5/8")
Weight 2.0 kg (4.4 lb.)

Speaker System

Type 2 way 2 sp bass-reflex
Speakers Woofer 14 cm (5 1/2") cone type
Tweeter 6 cm (2 3/8") cone type
Impedance HIGH 8Ω
LOW 6Ω
Input level Music HIGH 10 W
LOW 50 W
Output sound pressure level 87 dB/W (1.0 m)
Frequency range 42 Hz~22 kHz (−16 dB)
Dimensions (W×H×D) 165×329×302 mm (6 1/2"×12 15/16"×11 7/8")
Weight 5.1 kg (11.2 lb.)

Stereo Double Cassette Deck

Track system Compact cassette stereo
Tape speed 4.8 cm/sec. (1 7/8 ips)
Bias frequency 80 kHz
Heads
(DECK 2) REC/PLAY Permalloy head
Erasing Double-gap ferrite head
(DECK 1) PLAY Permalloy head
Motors
(DECK 2) DC servo motor
(DECK 1) DC servo motor
Wow and flutter 0.1% (WRMS)
Fast Forward and Rewind Time Approx. 110 seconds with C-60 cassette tape
Frequency response (w/o Dolby N.R.)
METAL 30 Hz~17 kHz
CrO_2 30 Hz~16 kHz
NORMAL 30 Hz~16 kHz
S/N (signal level max recording level, CrO_2 type tape)
DOLBY B NR on 66 dB (CCIR)
DOLBY C NR on 74 dB (CCIR)
DOLBY off 56 dB (A WTD)

■ GENERAL

Power consumption 16 W
Dimensions (W×H×D) 215×110×297 mm (8 15/32"×4 11/32"×11 11/16")
Weight 2.6 kg (5.7 lb.)

Notes:

1. Specifications are subject to change without notice.
   Weight and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer.

MEMO